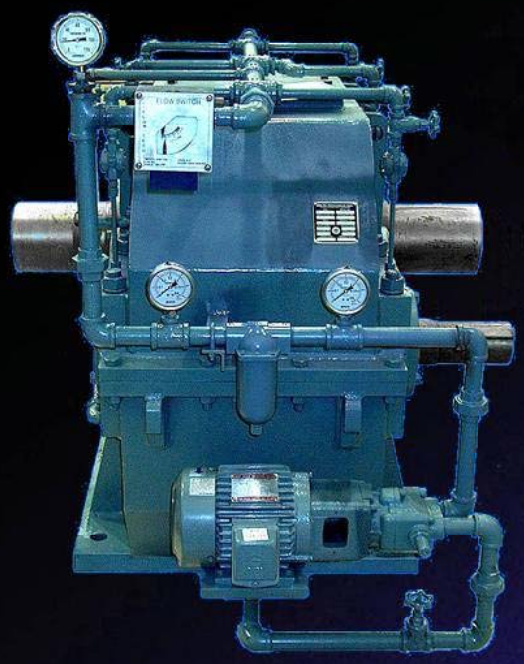

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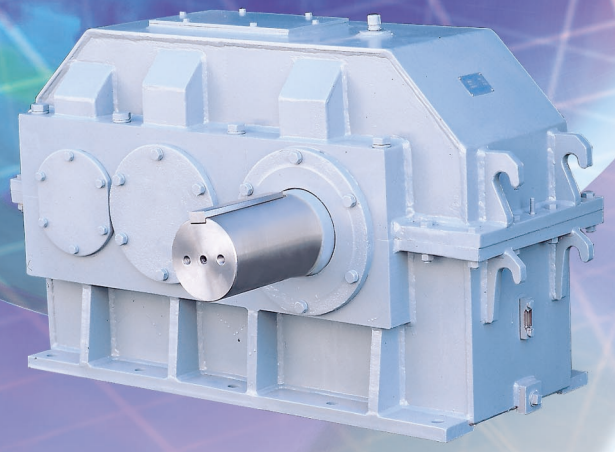
DELTA HELICAL REDUCERS

Parallel Shaft & Right Angle Reducers



Since 1994, Delta Dynamics Inc., "Delta" has been manufacturing products of the highest quality and integrity. With superior design technology and highly advanced and automated manufacturing facilities, Delta products are built to last.

A superior Quality Management System is standard at Delta, and our team of professionally skilled workman continuously monitor the manufacturing process to insure an efficient, reliable and top quality product. At Delta we offer a wide selection of gear reducers that can handle any industrial application.

We offer 11 sizes with ratios up 500:1 and torque ratings up to 3,500,000 in-lb output. All gear reducers come with a wide array of standard accessories, configurations and engineered options.

Our Quality control managment guarantees a product of excellence, beginning with the original design and manufacturing, and continuing through to delivery, and our commitment to customer service.

At our Western Canadian location Delta caters to an international market with Delta products and services available 24 hours a day with Customer Satisfaction Our Number One Goal.

DELTA HELICAL REDUCERS

Parallel Shaft & Right Angle Reducers
11Sizes
Ratios Up To 500:1
Torque Ratings Up to 3,500,000 in-lb Output

GEARS AND PINIONS

Helical gear teeth are cut on high quality, alloy steel material, then carburized, hardened, and precision ground. The resulting gears and pinions provide high durability ratings with decreased stress and dynamic loads, which provides longer life. Meets AGMA Level 12 specifications.

SHAFTS

Output shafts are made of heat treated, Maximum strength carbon steel, through hardened prior to turning and grinding. Close tolerance bearing shoulders facilitate the mounting of bearings.

Highly polished surfaces are provided for oil seals to assure their long life. Large diameters are specified throughout for maximum strength and overhung load capacity.

BEARINGS

Husky roller bearings provide maximum longevity.

Output shafts have high capacity roller bearings for heavy overhung and thrust loads.

SEALS

Dual lip type oil seals are standard. Grease purged and labyrinth seals are available options.

Inspection Port

All reducers are supplied with an oversize inspection port.

HOUSINGS

Rugged fabricated steel housings constructed to exacting specifications are standard. Special configurations and castings also available.

LUBRICATION

Continuous splash lubrication including troughs and feeds and drains to bearings is used on most ratios and speeds. Forced lubrication utilizing oil pumps, filters, heat exchangers, sight gauges and alarm systems is available. Lubrication systems are designed for floor mounting. Other mounting positions are permissible with the concurrence of our Engineering Department.

EFFICIENCY

Based on 100% load and 100% speed the approximate efficiency of parallel shaft units is 98% for double reduction. 97.5% for triple reduction, and 96.5% for quadruple reduction. For right angle units apporoximate efficiencies are 97.5% for double reduction, 97% for triple reduction, and 96% for quadruple reduction. Actual operating efficiencies may deviates slightly.

Oil Level Accuracy

Sight gauges are standard on all models and Dip Stick arrangements are available.

Warranty

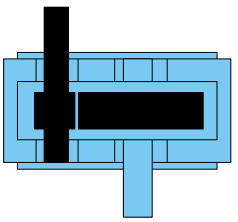
One year warranty from time of shipment.

TYPE AND CONSTRUCTION

■Parallel Shaft Type : DH

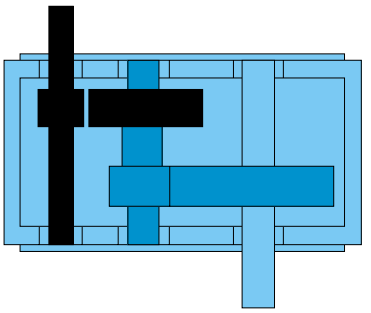
Single Reduction

DH1



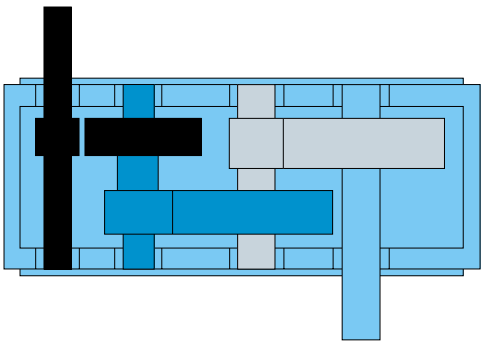
Double Reduction

DH2



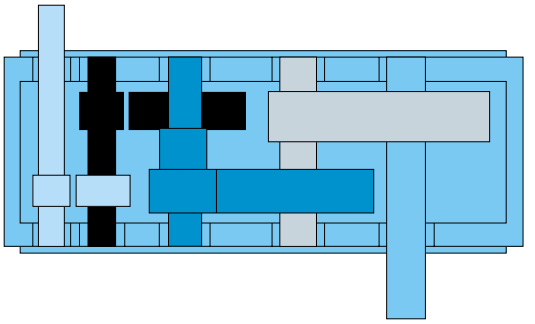
Triple Reduction

DH3



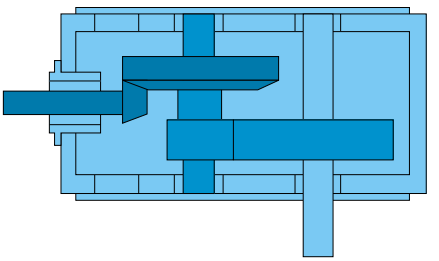
Quadruple Reduction

DH4

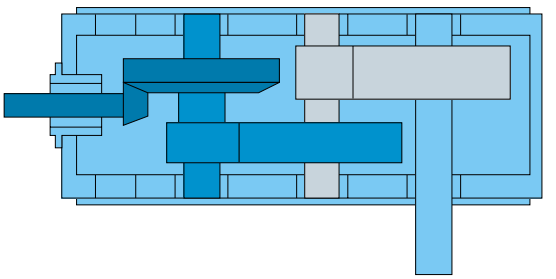


■Right Angle Type :DR

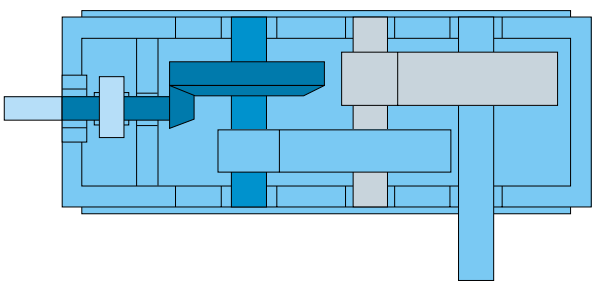
DR2



DR3

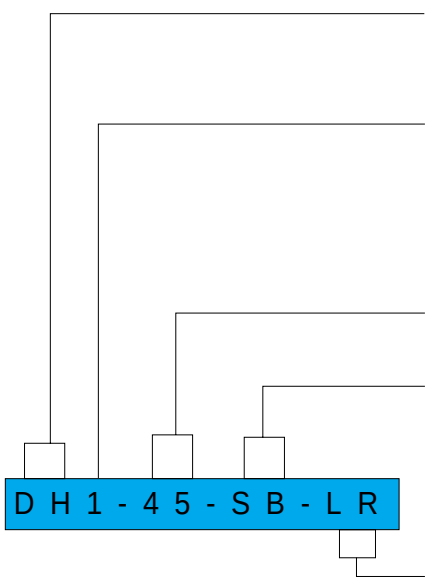


DR4



TYPE AND CONSTRUCTION

■Example of Unit Identification



Type - DH : Parallel Shaft
DR : Right Angle

Number of Reductions
1 : Single Reduction
2 : Double Reduction
3 : Triple Reduction
4 : Quadruple Reduction

Unit Size

Mounting Arrangement
SB : Solid Shaft-Base Mounted
HB : Hollow Shaft-Base Mounted
HS : Hollow Shaft-Shaft Mounted

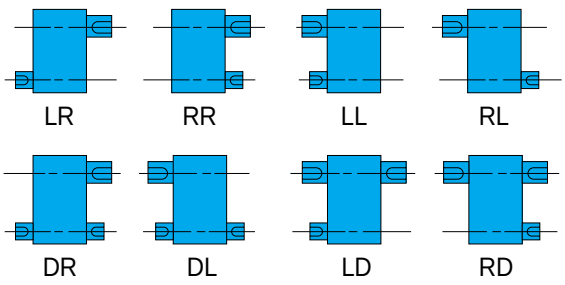
Shaft Arrangement

■Reducers can be supplied with

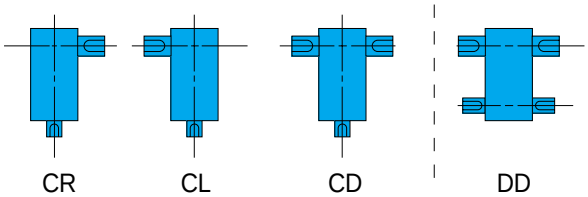
- Solid Output Shaft
- Hollow Shaft with Shrink Disk
- Hollow Shaft with Keyway

SHAFT ARRANGEMENT

■Parallel Shaft Type(Horizontal)



■Right Angle Type



* VIEW FROM TOP.

MODIFICATIONS

Optional equipment and modifications are available with DELTA reducers to meet the exact specifications of your installation.

Contact our Sales Representative with your requirements for:

Special Shaft Extentions
Lubrication Systems
Auxiliary Cooling
Sump Heaters
Bedplates
Coupling and Coupling Guards
Backstops, Clutches and Brakes
Outboard Pinions and Bearings

SERVICE FACTORS & LOAD CHARACTERISTICS

Service factors and load characteristics in the tables on page 9 and in the conversion chart below classify the character of the load in various applications so that a proper speed reducer can be selected for a given service. The actual load, and not the rating of the motor or prime mover, is to be used in determining the unit selection. Applications with high torque motors, and motors for intermittent operations, and applications where extreme repetitive shock occurs, or where high energy loads must be absorbed, as when stalling, require special consideration and are not covered by service factors given in the tables. Applications involving unusual or severe loading or requiring a high degree of dependability should be carefully reviewed with our Engineering Department.

Service factors represent the normal relationship between gear design power rating and the continuous power requirements. Commonly recognized classifications of service factors are uniform, moderate shock, and heavy shock.

When drives are equipped with brakes on the input, and the torque rating of the brake exceeds the rating of the motor, the rating of the brake dictates the selection of the gear unit.

For infrequent starting(less than 5 starts per hour) the maximum momentary or starting load should not exceed 275% of rated load(175%overload). For frequent starting(More than 5 starts per hour), the actual maximum momentary or starting load shall not exceed 200% of rated load (100% overload). Rated load is defined as the unit rating with a service factor of 1.0.

Responsibility : The manufacturer's published warranty applies to the enclosed drives described in this publication provided the following conditions are met.

The unit is protected from the elements, as prescribed by the manufacturer, in either inside or outside storage, between the interval of its receipt by the buyer and actual installation.

The unit is properly installed and lubricated in accordance with the manufacturer's instructions.

The system of connected rotating parts is compatible, free from critical speed, torsional or other type vibration, which the specified operating speed range, no matter how induced. Responsibility for system analysis, in compliance with these requirements, rests with purchaser of the gear unit.

The transmitted load, imposed torsional, thrust and overhung loads are within the capacity limits for which the unit was sold, or as specified in the purchase contract.

Exceptions to any of the foregoing provisions are a matter of specific contractual agreements.

SERVICE FACTOR CONVERSIONS

Multi-cylinder engine driven applications and intermittent operations up to 3 hours per day require an upgraded service factor. Locate the service factor for your application in the electric or hydraulic motor drives table and convert by substituting the factor from this conversion table.

Prime Mover	Duration of Service	Load Class		
		U	M	H
Electric or Hydraulic Motor	Up to 3 hrs/day	0.80	1.00	1.50
	3 to 10 hrs/day	1.00	1.25	1.75
	Over 10 hrs/day	1.25	1.50	2.00
Multi-Cylinder Engine	Up to 3 hrs/day	1.00	1.25	1.75
	3 to 10 hrs/day	1.25	1.50	2.00
	Over 10 hrs/day	1.50	1.75	2.25

∗ FOOTNOTES FOR SERVICE FACTORS TABLE

∗ Service factors are minimum values recommended. Refer to conversion table on page 8.

△ Contact DELTA sales Representative or Engineering Department.

Note 1 : Service factors for paper mill application are applied to name plate rating of electric drive motor at the motor rated base speed.

Note 2 : A service factor of 1.00 may be applied at base speed of a super calender operating over speed range of part range, constant horsepower, part range, constant torque where the constant horsepower speed range is greater than 1.5 to 1.0 A service factor of 1.25 is applicable to super calendar operating over the entire speed range at constant torque or where the constant horsepower speed range is less than 1.5 to 1.0.

SERVICE FACTORS TABLE

APPLICATION	SERVICE 10 Hrs/ Day	SERVICE 24 Hrs/ Day
Agitators(Mixers)	1.00	1.25
pure Liquids	1.25	1.50
liquids and Solid	1.25	1.50
Liquids-Variable Density		
Blowers		
Centrifugal	1.00	1.25
Lobe	1.25	1.50
Vane	1.00	1.25
Brewing and Distilling		
Bottling machinery	1.00	1.25
Brew Kettles, Cont. Duty	1.00	1.25
Cookers-Cont. Duty	1.00	1.25
Mash Tubs-Cont. Duty	1.00	1.25
Scale Hopper. Freq. Starts	1.25	1.50
Can Filling Machines	1.00	1.25
Car Dumpers	1.75	2.00
Car Pullers	1.25	1.50
Clarifiers	1.00	1.25
Classifiers	1.25	1.50
Clay Working machinery		
Brick Press	1.75	2.00
Briquette Machine	1.75	2.00
Pug Mill	1.25	1.50
Compactors	2.00	2.00
Compressors		
Centrifugal	1.00	1.25
Lobe	1.25	1.50
Reciprocating Multi Cyl.	1.50	1.75
Reciprocating Single-Cyl.	1.75	2.00
Conveyors		
Uniformly Loaded or fed	1.00	1.25
Not uniformly fed	1.25	1.50
Reciprocating or Shaker	1.75	2.00
Cranes	△	△
Crusher		
Stone or Ore	1.75	2.00
Dredges		
Cable Reels	1.25	1.50
Conveyors	1.25	1.50
Cutter Head Drives	2.00	2.00
Pumps	2.00	2.00
Screen Drives	1.75	2.00
Stackers	1.25	1.50
Winches	1.25	1.50
Elevators		
Bucket	1.25	1.50
Centrifugal Discharge	1.00	1.25
Escalators	1.00	1.25
Freight	1.25	1.50
Gravity Discharge	1.00	1.25
Extruders		
General	1.50	1.50
Plastics-Var. Speed Dr.	1.50	1.50
Fixed Speed Drive	1.75	1.75
Rubber-Cont. Screw	1.75	1.75
Intermittent Screw	1.75	1.75
Fans		
Centrifugal	1.00	1.25
Cooling Towers	2.00	2.00
Forced Draft	1.25	1.25
Induced Draft	1.50	1.50
Industrial & Mine	1.50	1.50
Feeders		
Apron or Belt	1.25	1.50
Disc	1.00	1.25
Reciprocating	1.75	2.00
Screw	1.25	1.50
Food industry		
Cereal Cooker	1.00	1.25
Dough Mixer	1.25	1.50
Meat Grinders	1.25	1.50
Slicers	1.25	1.50
Generators & Exciters	1.00	1.25
Hammer Mills	1.75	2.00
Hoists	△	△
Laundry tumblers	1.25	1.50
Laundry Washers	1.50	2.00

APPLICATION	SERVICE 10 Hrs/ Day	SERVICE 24 Hrs/ Day
Lumber Industry		
Barkers-Spindle Feed	1.25	1.50
- Main Drive	1.75	1.75
Conveyors-Burner	1.25	1.50
- Main of Heavy Duty	1.50	1.50
- Main Log	1.75	2.00
- Re-Saw		
Merry-Go-Round	1.25	1.50
- Slab	1.75	2.00
-Transfer	1.25	1.50
Chains-Floor	1.50	1.50
- Green	1.50	1.75
Cut-Off Saws	1.50	1.75
Debarking Drums	1.75	2.00
Feeds-Edger	1.25	1.50
- Gang	1.75	1.75
- Trimmer	1.25	1.50
Log Deck	1.75	1.75
Log Hauls-Incline-Well Type	1.75	1.75
Log Turning Devices	1.75	1.75
Planer Feed	1.25	1.50
Planer Tilting Hoists	1.50	1.50
Rolls-Live-Off Brg-Roll-Casses	1.75	1.75
Sorting Table	1.25	1.50
Tripple Hoist	1.25	1.50
Transfers-Chain or Craneway	1.50	1.75
Tray Drives	1.25	1.50
Veneer Lathe Drives	1.25	1.50
Metal Mills		
Draw Bench Carriage and		
Main Drive	1.25	1.50
Run Out Tables		
Non-Reversing		
Group Drives	1.50	1.50
Individual Drives	2.00	2.00
Reversing	2.00	2.00
Slab Pushers	1.50	1.50
Shears	2.00	2.00
Wire Drawing	1.25	1.50
Wire Winding Machine	1.50	1.50
Metals Strip Processing Machinery		
Bridles	1.25	1.50
Coilers & Unicoilers	1.00	1.25
Edge Trimmers	1.25	1.50
Flatteners	1.25	1.50
Loopers(Acuummulators)	1.00	1.25
Pinch Rolls	1.25	1.50
Scrap Choppers	1.25	1.50
Shears	2.00	2.00
Slitters	1.25	1.50
Mills, Rotary Type		
Ball & Rod		
Spur Ring Gear	2.00	2.00
Helical Ring Gear	1.50	1.50
Direct Connected	2.00	2.00
Cement Kilns	1.50	1.50
Dryers & Coolers	1.50	1.50
Mixer, Concrete	1.25	1.50
Paper Mills(See Note 1)		
Agitators(Mixer)	1.50	1.50
Agitator for Pure Liquors	1.25	1.25
Barking Drums	2.00	2.00
Barkers-Mechanical	2.00	2.00
Beater	1.50	1.50
Breaker Stack	1.25	1.25
Calender	1.25	1.25
Chipper	2.00	2.00
Chip Feeder	1.50	1.50
Coating Rolls	1.25	1.25
Conveyors-Chip, Bark, Chemical	1.25	1.25
-Log(including Slab)	2.00	2.00
Couch Rolls	1.25	1.25
Cutter	2.00	2.00
Cylinder Molds	1.25	1.25
Dryers(Anti-Frcition, bearings)	1.25	1.25
Embosser	1.25	1.25

APPLICATION	SERVICE 10 Hrs/ Day	SERVICE 24 Hrs/ Day
Extruder	1.50	1.50
Fourdrinier Rolls	1.25	1.25
Jordan	1.50	1.50
Kiln Drive	1.50	1.50
Mt. Hope Rolls	1.25	1.25
Paper Rolls	1.25	1.25
Platter	1.50	1.50
Presses-Felt & Suction	1.25	1.25
Pulper	2.00	2.00
Pumps-Vaccum	1.50	1.50
Reel(Surface Type)	1.25	1.25
Screens-Chip & Rotary	1.50	1.50
- Vibrating	2.00	2.00
Size Press	1.25	1.25
Super Calender-(See Note 2)	1.25	1.25
Thickener(AC Motor)	1.50	1.50
- (DC Motor)	1.25	1.25
Washer(AC Motor)	1.50	1.50
- (DC Motor)	1.25	1.25
Wind & Unwind Stand	1.00	1.25
Winders(Surface Type)	1.25	1.25
Plastic Industry		
Blow Molders	1.50	1.50
Coating	1.25	1.25
Film	1.25	1.25
Pipe	1.25	1.25
Pre-plasticizers	1.50	1.50
Rods	1.25	1.25
Sheet	1.25	1.25
Tubing	1.25	1.50
Pumps		
Centrifugal	1.00	1.25
Proportioning	1.25	1.50
Reciprocating		
Single or Double Acting	1.25	1.50
Rotary	1.00	1.25
Rubber Industry	△	△
Sand Muller	1.25	1.50
Sewage Disposal Equipment		
Bar Screens	1.25	1.25
Chemical Feeders	1.25	1.25
Dewatering Screens	1.50	1.50
Scum Breakers	1.50	1.50
Slow or Rapid Mixers	1.50	1.50
Sludge Collectors	1.25	1.25
Thickeners	1.50	1.50
Vacuum Filters	1.50	1.50
Screens		
Air Washing	1.00	1.25
Rotary-Stone or Gravel	1.25	1.50
Traveling Water Intake	1.00	1.25
Sugar Industry		
Beet Slicer	2.00	2.00
Cane Knives	1.50	1.50
Crushers	1.50	1.50
Mills(low speed end)	1.75	1.75
Textile Industry		
Batchers	1.25	1.50
Calenders	1.25	1.50
Cards	1.25	1.50
Dry Cans	1.25	1.50
Dryers	1.25	1.50
Dyeing machinery	1.25	1.50
Looms	1.25	1.50
Mangles	1.25	1.50
Nappers	1.25	1.50
Pads	1.25	1.50
Slashers	1.25	1.50
Soapers	1.25	1.50
Spinners	1.25	1.50
Tenter Frames	1.25	1.50
Washers	1.25	1.50
Winders	1.25	1.50

* Foot Note : See Page 6

GENERAL INFORMATION

SERVICE FACTORS

Service factors serve to modify the mechanical power ratings. In practice the actual power rating to be transmitted is multiplied by the selected service factor to obtain what is called the equivalent power. This equivalent (mechanical) power is used to select the reducer from the rating tables. Service factors are not applied to the thermal power but only to the mechanical power.

MECHANICAL RATINGS

The mechanical power rating listings on pages 12 through 25 are for continuous 8 to 10 hour service and allow 100% overload in starting and for momentary shock loads. All components are designed to permit fewer than 5 starts per hour peak loads of 275% of catalog ratings without stresses exceeding 75% of the material yield point.

Where the mechanical rating exceeds the thermal rating, the full mechanical rating may be applied, provided that adequate cooling provisions are made.

THERMAL RATINGS

Thermal ratings are listed in power rating on pages 12 through 25. The thermal power rating is the rating of how much power a unit will continuously transmit for 3 hours or more without undue temperature rise. It is applied only when the mechanical power is higher and no cooling provisions are made.

Thermal ratings need not be considered when the continuous operating period does not exceed three hours and the shutdown time equals or exceeds the operating time. When the running time exceeds the shutdown time, selection must be made on the basis of the thermal rating or cooling provisions must be made. Consult our Engineering Department for cooling system recommendations.

OVERHUNG LOADS

Overhung load ratings in lbs. for low speed shafts are listed on page 38. High speed shaft overhung load values are not listed.

When the shaft of the speed reducer carries an overhung load, find the allowable shaft pull for the selected unit from the following formula.

$$\text{pull} = \frac{F \times 126{,}000 \times HP}{D \times RPM}$$

Where, HP=actual power to be transmitted.
RPM=revolutions per minute of shaft.
D=Pitch diameter in inches of pinion, sprocket, or diameter of pulley or sheave on shaft.
F=factor having following values;

Sprocket = 1.0
Pinion = 1.25
V Belt = 1.5
Flat Belt = 2.5

The allowable overhung loads, as listed, are calculated to be applied at the center of the shaft extensions which are designed as dimensions “L1” and “L2” on the dimension pages. For overhung loads in excess of those listed, consult company for suitable recommendations.

WARRANTY

DELTA warrants for one year that the speed reducers shown in this catalog will conform to applicable rated specification as indicated, provided the unit is properly installed, maintained and operated within the limit of speed, torque and load conditions for which it was sold.

The equipment is expressly not warranted against failure or unsatisfactory operation resulting from dynamic vibrations of any from imposed upon it by the drive system in which it is installed, no matter how induced, unless the specific conditions have been made known to DELTA and explicitly accepted as a condition of the order.

Install and operate DELTA products in conformance with applicable local and national safety codes and per installation manuals which are available upon request.
Refer to DELTA quotation for full warranty statement.

SELECTION GUIDELINES

POWER METHOD

1. Determine Service Factor
2. Calculate Equivalent HP
3. Determine Ratio
4. Determines Size of Unit
5. Verify Overhung Load Rating
6. Check Shaft and Mounting Dimensions.

EXAMPLE 1

Require a parallel Shaft type reducer to transmit 100 HP at 1750 RPM input, for 10 hours per day operation, driving a centrifugal pump at 30 RPM. Motor is electric and pump load is uniform

1. Service factor from page 9 is 1.0.
2. Equivalent HP = 100HP $\times$ 1.0 SF
   = 100 HP
3. Ratio = $\frac{1750\text{RPM}}{30\text{RPM}}$ = 58.3:1
4. Unit Selection-Start at the top of page 16 and read down the first column to 56:1 ratio, then read across unit the mechanical HP value is 115.
   The columm heading indicates unit size of DH3 26 for this application.
5. Solution-Size DH3 26, ratio 56:1 $\pm$3% rated 115 HP at 1750 RPM input, Actual SF = 1.15

TORQUE METHOD

1. Determine Service Factor
2. Calculate Equivalent Torque
3. Determine Ratio
4. Determine Size of Unit
5. Verify overhung Load Rating
6. Check Shaft and Mounting Dimensions.

EXAMPLE 2

Require a parallel Shaft type reducer to transmit 70K In-Lb of output torque at 70 RPM. Driver is a multi-cylinder gas engine driving a cement mixer up to 10 hrs. per day.

1. Service Factor from page 9 is 1.25. Converted service factor from table on page 8 is 1.50.
2. Calculate Equivalent Torque 70,000$\times$1.50=105,000 In-Lb
3. Determine Ratio = $\frac{1750\text{RPM input}}{70\text{RPM Mixer}}$ = 25 : 1
4. Unit Selection-Start at the top of page 14 and read down the first column to 25:1, then read across until the output torque value is 108,000.
   The columm heading indicates a unit size of DH2-22.
5. Solution-Size DH2-22, ratio 25:1 $\pm$3% rated 110,000 In-Lb output torque at 1750 RPM input, actual SF=1.57.

Single Reduction/Parallel Shaft DH1

Permissible Transmitting Power Ratings Unit: HP

Nominal Ratio	Speed		Unit Size								
	Input Rpm	Output Rpm	12	16	18	22	26	32	38	45	50
			Mechanical HP Rating								
2	1750	875	280	600	900	1550	2350	-	-	-	-
	1170	585	190	410	620	1050	1600	3500	5300	-	-
	870	435	145	315	480	840	1200	2150	4100	6000	-
2.24	1750	781	265	530	800	1400	2150	-	-	-	-
	1170	522	180	360	550	990	1450	2700	4900	-	-
	870	388	140	280	420	760	1100	2100	3750	5600	-
2.5	1750	700	230	450	700	1300	1950	-	-	-	-
	1170	468	160	305	480	900	1350	2400	4250	6500	-
	870	348	120	230	360	690	1050	1850	3250	5100	-
2.8	1750	625	200	380	600	1100	1900	3300	-	-	-
	1170	418	135	260	410	770	1300	2280	3900	6000	7600
	870	311	105	200	310	590	1000	1740	3000	4600	5800
3.15	1750	556	165	320	530	960	1600	3000	-	-	-
	1170	371	115	215	360	660	1100	2050	3300	5300	6400
	870	276	86	165	275	500	850	1570	2500	4050	4900
3.55	1750	493	150	270	460	830	1400	2250	4100	-	-
	1170	330	105	185	310	570	990	1550	2800	4300	5500
	870	245	78	140	240	430	750	1180	2150	3300	4200
4	1750	438	140	230	400	730	1200	2170	3500	-	-
	1170	293	97	155	270	500	840	1490	2400	4000	5000
	870	218	74	120	205	380	640	1130	1850	3050	3800
4.5	1750	389	115	210	350	580	1000	1760	3100	4500	-
	1170	260	79	140	240	400	710	1200	2150	3000	4000
	870	193	60	105	180	300	540	920	1600	2400	3000
5	1750	350	92	175	300	510	890	1570	2550	3950	5000
	1170	234	62	120	205	350	610	1080	1750	2700	3450
	870	174	47	90	155	265	460	820	1350	2050	2600
5.6	1750	313	79	145	270	430	780	1200	2250	3550	4300
	1170	209	54	97	185	530	530	840	1500	2400	2900
	870	155	41	74	140	225	400	640	1150	1800	2250
6.3	1750	278	65	120	230	370	660	1050	1800	2650	3700
	1170	186	44	80	155	250	450	720	1250	1850	2550
	870	138	33	60	120	190	340	550	970	1400	1900

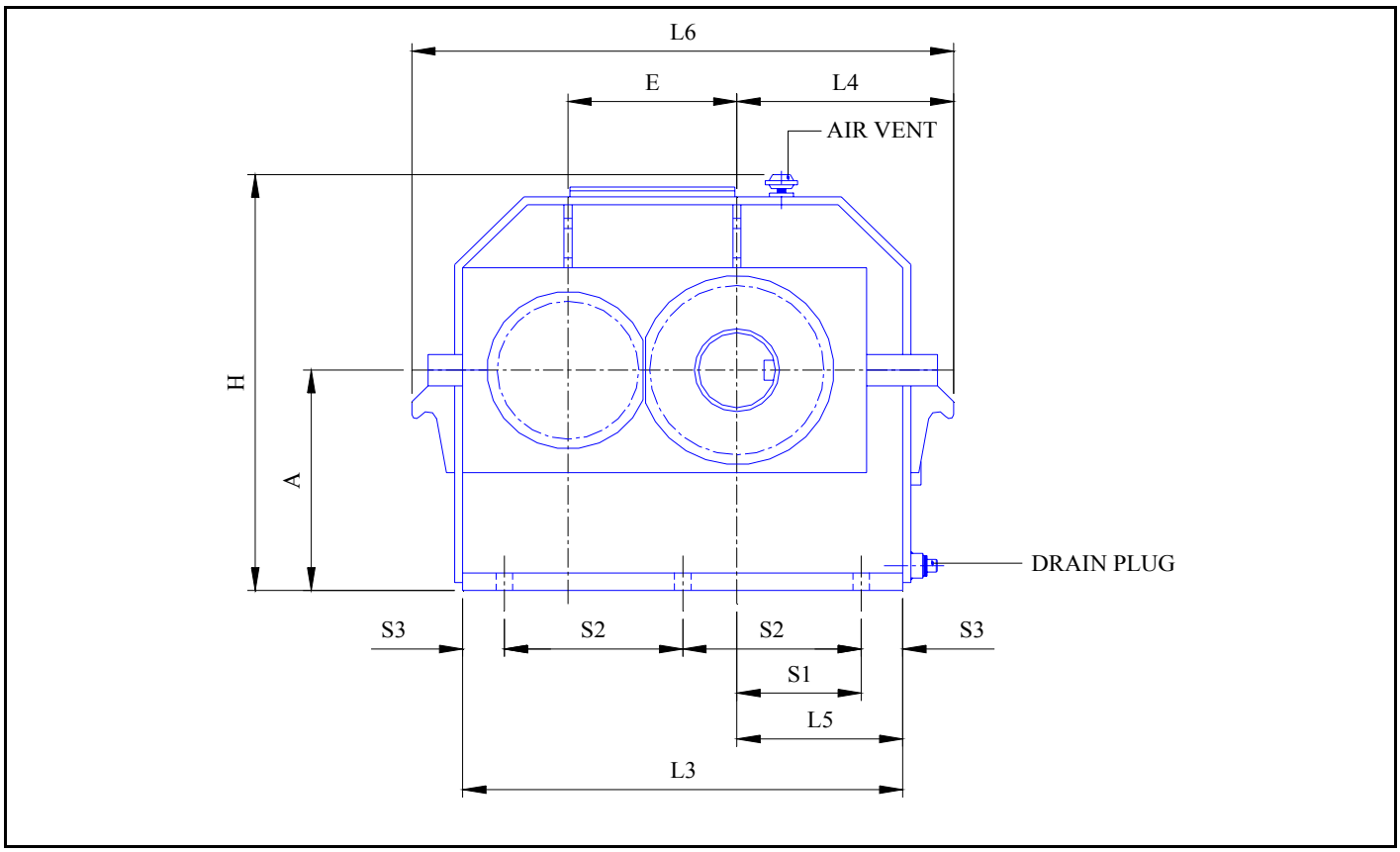
Thermal Ratings

Ratio	Speed Input Rpm	Unit Size								
		12	16	18	22	26	32	38	45	50
		Without Auxiliary Cooling								
2 - 3.15	1750	75	113	149	228	290	440	527	-	-
	1170	71	107	142	217	276	418	501	779	953
	870	68	102	135	208	264	399	479	744	910
3.55 - 6.3	1750	70	103	138	210	268	406	487	756	926
	1170	66	98	130	198	252	382	458	710	870
	870	63	94	125	190	241	366	440	681	834
		With Fan Cooling								
2 - 3.15	1750	117	174	232	354	449	681	816	1268	1551
	1170	109	161	213	327	414	556	668	1038	1269
	870	101	149	197	302	383	515	618	960	1173
3.55 - 6.3	1750	109	160	214	328	416	558	670	1040	1273
	1170	99	147	194	298	379	508	610	948	1158
	870	91	137	181	277	299	472	567	879	1076

Single Reduction/Parallel Shaft DH1

Nominal Ratio	Unit Size								
	12	16	18	22	26	32	38	45	50
Permissible Output Torque Rating								Unit: 1000 in-lb	
2	19.3	42.2	62.0	107	168	361	558	863	-
2.24	20.9	41.7	62.7	110	172	314	583	895	-
2.5	20.4	39.6	61.0	117	173	316	564	862	-
2.8	19.8	38.1	58.8	111	190	331	569	892	1123
3.15	18.3	35.9	58.9	107	177	328	547	889	1075
3.55	18.5	34.0	57.4	103	176	283	508	809	1013
4	19.4	31.9	56.3	103	169	301	486	830	1039
4.45	18.0	33.0	55.1	92	157	277	494	704	936
5	16.4	31.1	53.4	91	158	279	443	702	889
5.6	15.4	28.4	52.8	84	153	235	450	690	836
6.3	14.3	26.6	50.0	82	144	235	396	587	811
Actual Gearing Ratio									
2	1.963	2.000	1.958	1.958	2.036	1.962	2.000	2.034	2.037
2.24	2.240	2.238	2.227	2.227	2.269	2.208	2.261	2.259	2.240
2.5	2.522	2.500	2.478	2.550	2.524	2.500	2.524	2.520	2.522
2.8	2.810	2.850	2.789	2.864	2.842	2.850	2.773	2.826	2.810
3.15	3.158	3.190	3.158	3.176	3.143	3.105	3.150	3.190	3.192
3.55	3.500	3.579	3.550	3.526	3.579	3.579	3.524	3.579	3.500
4	3.950	3.944	4.000	4.000	4.000	3.944	3.947	3.944	3.950
4.45	4.444	4.474	4.474	4.529	4.474	4.474	4.529	4.450	4.450
5	5.063	5.059	5.059	5.056	5.059	5.059	4.944	5.056	5.056
5.6	5.526	5.579	5.563	5.526	5.563	5.579	5.688	5.529	5.526
6.3	6.235	6.294	6.176	6.294	6.188	6.353	6.238	6.294	6.235
Rotational Inertia WR²								Unit: lb-ft²	
2	0.5457	1.8174	3.5019	8.8924	20.1764	51.1955	136.803	295.699	508.700
2.24	0.5125	1.5422	3.1413	7.9766	17.8323	45.5820	122.482	261.368	427.586
2.5	0.4627	1.3808	2.8851	7.2126	17.0541	40.8606	104.237	232.309	382.147
2.8	0.3976	1.3286	2.6098	6.1877	14.3494	36.5235	93.285	205.390	321.741
3.15	0.2951	1.0534	2.1543	5.5613	13.0065	32.4759	81.199	180.397	295.334
3.55	0.2904	0.8826	1.9977	4.8496	11.8012	26.5682	74.257	148.761	263.992
4	0.2543	0.8162	1.6561	3.9480	9.3812	24.2288	62.385	139.252	247.906
4.45	0.2126	0.7592	1.4663	3.3643	8.3088	20.3710	53.345	106.538	208.441
5	0.1746	0.5742	1.2148	3.1271	6.9090	16.7741	43.181	92.891	165.839
5.6	0.1580	0.5077	1.1151	2.6193	6.3206	14.7669	37.705	83.373	141.667
6.3	0.1333	0.4237	0.9395	2.2682	5.1010	12.7028	32.969	65.412	117.614

Single Reduction/Parallel Shaft DH1



Unit: inch

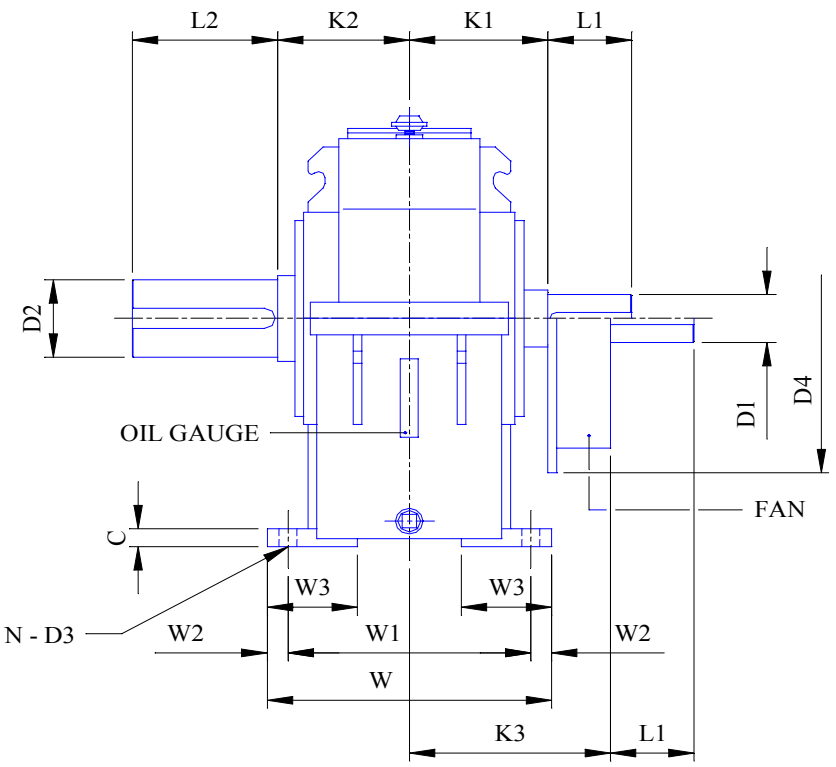
Unit Size	High Speed Shaft								
	Ratio: 2 - 2.8			Ratio: 3.15 - 4.5			Ratio: 5 - 6.3		
	D_1	L_1	Key	D_1	L_1	Key	D_1	L_1	Key
12	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15	1.1875	2.0000	0.250 x 0.250 x 1.80
16	2.1875	3.5625	0.500 x 0.500 x 3.25	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15
18	2.3750	4.1250	0.625 x 0.625 x 3.75	2.1875	3.5625	0.500 x 0.500 x 3.25	1.7500	2.7500	0.375 x 0.375 x 2.50
22	2.9375	4.7500	0.750 x 0.750 x 4.25	2.5625	4.1250	0.625 x 0.625 x 3.75	2.0000	3.1250	0.500 x 0.500 x 2.75
26	3.3750	5.5000	0.875 x 0.875 x 5.00	2.9375	4.7500	0.750 x 0.750 x 4.25	2.3750	4.1250	0.625 x 0.625 x 3.75
32	4.1250	7.0625	1.000 x 1.000 x 6.50	3.7500	6.3125	0.875 x 0.875 x 5.75	2.9375	4.7500	0.750 x 0.750 x 4.25
38	4.9375	8.2500	1.250 x 1.250 x 7.50	4.3125	7.0625	1.000 x 1.000 x 6.25	3.5625	6.3125	0.875 x 0.875 x 5.75
45	5.6875	9.4375	1.500 x 1.500 x 8.50	4.9375	8.2500	1.250 x 1.250 x 7.50	3.9375	7.0625	1.000 x 1.000 x 6.50
50	6.1250	9.4375	1.500 x 1.500 x 8.50	5.3125	8.2500	1.250 x 1.250 x 7.50	4.5000	7.8750	1.000 x 1.000 x 7.25

Unit Size	Dimensions										
	E	K_1	K_2	L_3	L_4	L_5	L_6	A	H	W	C
12	4.92	4.72	4.33	14.57	8.66	5.51	20.87	6.30	12.99	9.25	0.59
16	6.30	5.31	5.12	17.72	9.84	6.69	24.02	7.87	15.94	10.83	0.59
18	7.28	6.10	5.71	20.08	10.83	7.68	26.38	9.84	19.29	12.99	0.79
22	8.66	7.09	6.69	23.62	12.01	8.86	29.92	12.40	23.43	14.57	0.79
26	10.43	7.78	7.48	27.17	13.39	10.24	33.46	13.98	26.38	16.14	1.10
32	12.60	9.45	8.66	33.07	15.75	12.60	39.37	15.75	30.71	18.90	1.10
38	15.16	10.63	9.84	38.19	17.32	14.17	44.49	19.69	37.40	20.87	1.10
45	17.72	12.20	11.42	45.28	21.26	17.32	53.15	22.05	42.13	24.41	1.38
50	19.69	13.19	12.60	50.39	23.23	19.29	58.27	24.80	46.85	26.38	1.38

* For construction purposes use certified dimension prints only

* A: Tolerance +0.000 -0.030

Single Reduction/Parallel Shaft DH1



Unit: inch

Unit Size	Low Speed Shaft					
	Solid Shaft				Hollow Shaft	
	WT (lbs)	D_2	L_2	Key	Wt (lbs)	
12	209	2.1875	3.5625	0.500 x 0.500 x 3.25		
16	374	2.7500	4.7500	0.625 x0.625 x 4.25		
18	616	3.3750	5.5000	0.875 x 0.875 x 5.00		
22	869	3.9375	7.0625	1.000 x 1.000 x 6.50		
26	1375	4.7500	8.2500	1.250 x 1.250 x 7.50		
32	2244	5.5000	9.4375	1.250 x 1.250 x 8.50		
38	3278	6.1250	9.4375	1.500 x 1.500 x 8.50		
45	4972	7.5000	12.1875	1.750 x 1.250 x 11.00		
50	6820	8.2500	13.7500	2.000 x 1.500 x 12.50		

Refer to Hollow Output Shaft Design on pages 38 and 39

Unit Size	Dimensions								Fan Cooling		Oil Capacity Gallons
	S_1	S_2	S_3	W_1	W_2	W_3	D_3	N	D_4	K_3	
12	3.74	5.51	1.77	7.68	0.79	3.15	0.55	6	10.43	7.87	0.8
16	4.92	7.09	1.77	9.06	0.89	3.54	0.71	6	12.20	8.85	1.5
18	5.51	7.87	2.17	10.63	1.18	4.33	0.87	6	13.19	9.64	2.9
22	6.89	9.84	1.97	12.20	1.18	4.72	0.87	6	18.90	10.63	5.5
26	7.68	11.02	2.56	13.78	1.18	5.12	1.02	6	18.90	11.42	7.1
32	10.24	9.45	2.36	16.54	1.18	5.91	1.02	8	21.26	13.04	12
38	11.02	10.63	3.15	18.50	1.18	6.10	1.02	8	21.26	14.17	19
45	14.37	9.84	2.95	21.65	1.38	7.09	1.30	10	25.00	14.57	26
50	16.54	11.22	2.76	23.62	1.38	7.48	1.30	10	28.94	15.55	40

Double Reduction/Parallel Shaft DH2

Permissible Transmitting Power Ratings Unit: HP

Nominal Ratio	Speed		Unit Size										
	Input Rpm	Output Rpm	18	22	26	32	38	45	50	56	61	66	71
			Mechanical HP Rating										
7.1	1750	246.5	285	500	780	1350	2130	-	-	-	-	-	-
	1170	164.8	190	340	530	920	1450	2760	3480	4510	-	-	-
	870	122.5	145	260	400	670	1100	2080	2620	3390	4520	4950	5370
8	1750	218.8	250	440	690	1160	2000	-	-	-	-	-	-
	1170	146.3	170	300	470	790	1360	2450	3090	3940	-	-	-
	870	108.8	130	225	350	600	1030	1840	2320	2960	4080	4450	4890
9	1750	194.4	230	400	620	1030	1810	-	-	-	-	-	-
	1170	130.0	155	270	420	700	1230	2170	2780	3700	4880	5350	-
	870	96.7	120	205	320	530	930	1630	2090	2780	3670	4020	7380
10	1750	175.0	215	350	550	930	1590	2830	-	-	-	-	-
	1170	117.0	145	235	370	630	1080	1920	2530	3380	4450	4850	6890
	870	87.0	110	180	285	480	820	1460	1900	2540	3350	3650	5180
11.2	1750	156.3	180	310	490	830	1440	2590	-	-	-	-	-
	1170	104.5	122	210	330	560	980	1760	2220	2930	3990	4280	6480
	870	77.7	93	160	250	430	740	1330	1670	2200	3000	3200	4870
12.5	1750	140.0	175	280	440	740	1260	2260	2930	3870	-	-	-
	1170	93.6	120	190	300	500	860	1540	1990	2630	3490	3750	5280
	870	69.6	90	145	225	380	650	1160	1510	1990	2620	2820	3970
14	1750	125.0	150	250	420	670	1150	1910	2650	3280	-	-	-
	1170	83.6	105	170	285	460	780	1300	1800	2230	3150	3660	4910
	870	62.1	77	130	215	340	590	980	1360	1690	2370	2750	3690
16	1750	109.4	135	230	380	590	1030	1800	2180	2910	-	-	-
	1170	73.1	92	155	260	400	700	1220	1480	1980	2920	3410	4370
	870	54.4	70	120	195	300	530	930	1120	1500	2190	2560	3280
18	1750	97.2	120	200	340	520	910	1650	1880	2530	3830	4370	-
	1170	65.0	82	135	230	350	620	1120	1280	1720	2600	2970	3880
	870	48.3	62	105	175	265	470	850	970	1300	1970	2250	2920
20	1750	87.5	100	180	300	510	810	1470	1750	2330	3360	3840	4890
	1170	58.5	68	120	205	350	550	1000	1190	1580	2280	2610	3320
	870	43.5	52	93	155	265	420	760	900	1200	1730	1980	2520
22.4	1750	78.1	92	140	250	420	710	1080	1580	1930	2740	3330	4160
	1170	52.2	63	95	170	285	480	730	1070	1310	1860	2260	2830
	870	38.8	47	72	130	215	360	560	810	990	1410	1710	2140
25	1750	70.0	79	125	230	370	640	980	1360	1700	2500	2990	3860
	1170	46.8	54	85	155	250	440	670	920	1160	1700	2030	2620
	870	34.8	41	64	120	190	330	500	700	880	1290	1540	1990
28	1750	62.5	71	110	205	330	570	870	1250	1540	2200	2650	3410
	1170	41.8	48	75	140	225	390	590	850	1050	1500	1800	2320
	870	31.1	37	57	105	170	295	450	640	790	1130	1360	1760

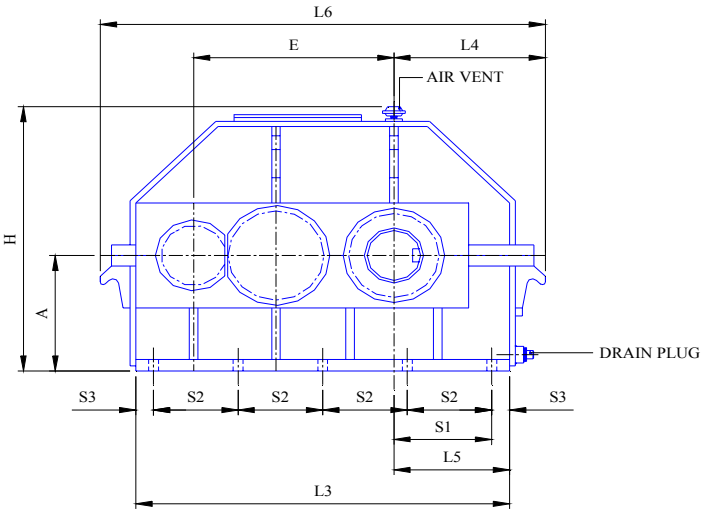
Thermal Ratings

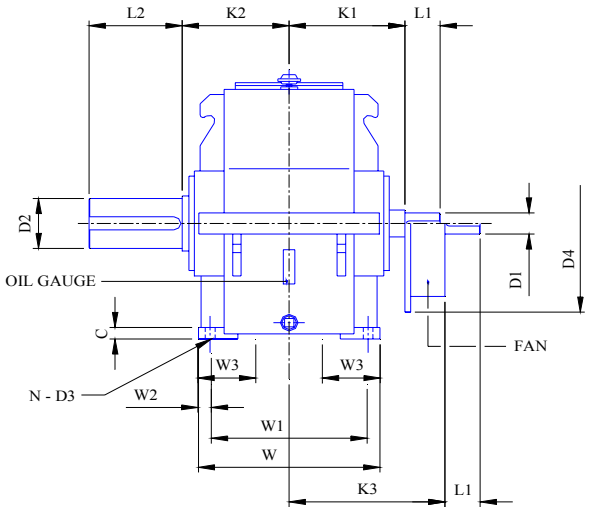
Ratio	Speed Input Rpm	Unit Size										
		18	22	26	32	38	45	50	56	61	66	71
		Without Auxiliary Cooling										
7.1 - 14	1750	98	133	189	269	347	504	619	736	925	1034	-
	1170	94	126	180	257	330	480	590	701	881	985	1123
	870	88	121	172	245	315	458	563	669	840	940	1072
16 - 28	1750	90	123	176	251	322	469	576	684	859	961	1097
	1170	84	115	165	235	302	438	538	641	804	899	1027
	870	82	111	158	225	290	421	516	614	771	862	984
		With Fan Cooling										
7.1 - 14	1750	133	180	255	365	468	681	836	995	1251	1395	1594
	1170	122	166	236	336	433	629	772	918	1154	1290	1475
	870	113	153	218	311	399	582	714	850	1068	1193	1361
16 - 28	1750	123	168	237	339	436	634	777	925	1162	1299	1481
	1170	111	151	214	307	394	575	705	838	1055	1177	1345
	870	103	141	200	286	367	534	655	779	979	1094	1248

Double Reduction / Parallel Shaft DH2

Nominal Ratio	Unit Size										
	18	22	26	32	38	45	50	56	61	66	71
	Permissible Output Torque Rating									Unit: 1000 in-lb	
7.1	69.5	123	191	331	535	1014	1275	1666	2282	2516	2714
8	69.6	122	192	323	560	1013	1280	1645	2287	2511	2718
9	72.0	123	192	329	563	1016	1285	1725	2269	2505	4619
10	75.0	123	192	334	557	1010	1285	1731	2320	2546	3573
11.2	70.6	122	194	330	558	1007	1281	1705	2349	2537	3817
12.5	76.1	124	196	327	556	1013	1264	1684	2305	2493	3433
14	73.5	125	208	326	568	943	1291	1595	2360	2742	3597
16	74.6	127	213	326	569	980	1189	1585	2411	2815	3613
18	74.6	125	213	325	562	1019	1177	1581	2385	2722	3614
20	70.9	127	212	356	566	1026	1196	1590	2378	2717	3460
22.4	72.9	112	198	332	569	851	1216	1486	2181	2633	3312
25	68.3	110	203	320	564	851	1204	1506	2176	2586	3358
28	69.3	110	242	325	559	861	1214	1496	2180	2609	3348
	Actual Gearing Ratio										
7.1	6.969	7.053	7.009	7.009	7.173	7.020	7.000	7.059	7.174	7.220	7.183
8	7.952	7.892	7.971	7.971	7.996	7.904	7.913	7.980	7.967	8.020	7.899
9	8.953	8.816	8.870	9.126	8.893	8.947	8.833	8.908	8.886	8.946	8.892
10	9.974	10.050	9.983	10.249	10.015	10.200	9.705	9.786	9.966	10.033	9.907
11.2	11.211	11.251	11.302	11.368	11.075	11.114	11.025	11.118	11.251	11.326	11.257
12.5	12.425	12.620	12.705	12.620	12.612	12.809	12.333	12.437	12.620	12.705	12.342
14	14.000	14.316	14.200	13.909	14.127	14.117	13.919	13.899	14.316	14.316	14.000
16	15.800	15.778	16.000	15.778	15.789	15.559	15.592	15.570	15.778	15.778	15.800
18	17.778	17.895	17.895	17.866	17.659	17.646	17.891	17.866	17.800	17.800	17.800
20	20.250	20.235	20.235	19.941	19.969	19.954	19.531	19.503	20.222	20.222	20.222
22.4	22.648	22.913	22.632	22.617	22.913	22.512	22.003	22.003	22.750	22.601	22.750
25	24.723	25.269	24.885	24.723	25.195	24.826	25.309	25.309	24.882	24.720	24.868
28	27.895	28.509	27.632	28.158	28.026	28.271	27.760	27.760	28.324	28.138	28.059
	Rotational Inertia WR²									Unit: lb-ft²	
7.1	1.8648	2.9135	6.4107	15.265	38.592	86.599	198.101	236.636	473.126	517.858	861.175
8	1.5801	2.4153	5.4664	13.021	32.628	73.654	170.522	201.608	401.858	437.119	709.259
9	1.3714	2.0831	4.7547	11.232	29.036	63.215	141.956	167.248	344.037	371.930	608.719
10	1.1910	1.8269	4.1615	9.4286	24.347	54.735	123.521	144.538	296.212	318.780	508.354
11.2	0.9870	1.5374	3.4165	8.2234	21.301	47.328	106.145	124.148	253.268	271.248	450.686
12.5	0.9111	1.2337	3.0559	6.6669	17.453	38.113	93.503	107.710	204.806	219.222	382.280
14	0.8826	1.1721	2.8613	6.4866	16.508	37.420	90.837	102.282	195.311	212.327	364.594
16	0.7735	1.0439	2.3726	5.2387	12.807	32.424	71.970	83.116	173.905	186.964	308.037
18	0.4793	0.8921	1.8648	4.3703	11.251	27.052	61.583	71.339	137.586	147.907	254.621
20	0.4157	0.7640	1.5754	4.0239	9.7893	22.914	51.746	59.400	119.763	128.119	222.316
22.4	0.4086	0.7402	1.5422	3.8910	9.4951	21.747	50.175	58.138	115.625	124.779	183.253
25	0.3412	0.6453	1.3476	3.1508	8.4179	18.350	42.313	48.102	101.499	108.840	186.760
28	0.2956	0.5457	1.1104	2.6763	6.8805	15.635	36.424	41.468	80.468	86.315	156.121

Double Reduction / Parallel Shaft DH2





Unit: inch

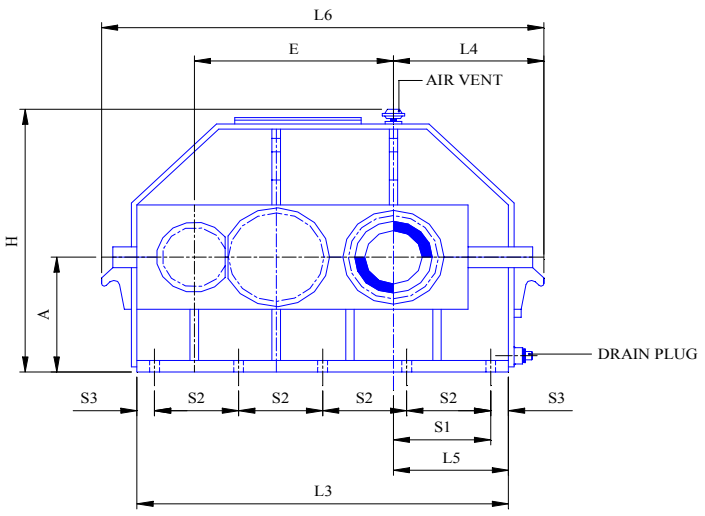
Unit Size	High Speed Shaft								
	Ratio: 7.1 - 11.2			Ratio: 12.5 - 22.4			Ratio: 25 - 28		
	D_1	L_1	Key	D_1	L_1	Key	D_1	L_1	Key
18	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15	1.1875	2.0000	0.250 x 0.250 x 1.80
22	2.1875	3.5625	0.500 x 0.500 x 3.25	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15
26	2.5625	4.1250	0.625 x 0.625 x 3.75	2.0000	3.1250	0.500 x 0.500 x 2.75	1.6250	2.7500	0.375 x 0.375 x 2.50
32	2.9375	4.7500	0.750 x 0.750 x 4.25	2.3750	4.1250	0.625 x 0.625 x 3.75	2.0000	3.1250	0.500 x 0.500 x 2.75
38	3.5675	6.3125	0.875 x 0.875 x 5.75	2.9375	4.7500	0.750 x 0.750 x 4.25	2.3750	3.9375	0.625 x 0.625 x 3.50
45	3.9375	7.0625	1.000 x 1.000 x 6.50	3.5625	6.3125	0.875 x 0.875 x 5.75	2.7500	4.7500	0.625 x 0.625 x 4.25
50	4.7500	8.2500	1.250 x 1.250 x 7.50	3.9375	7.0625	1.000 x 1.000 x 6.50	3.1250	5.5000	0.750 x 0.750 x 5.00
56	5.1250	8.2500	1.250 x 1.250 x 7.50	4.3125	7.0625	1.000 x 1.000 x 6.50	3.5625	6.3125	0.875 x 0.875 x 5.75
61	5.8750	9.4375	1.500 x 1.500 x 8.50	4.7500	8.2500	1.250 x 1.250 x 7.50	3.9375	7.0625	1.000 x 1.000 x 6.50
66	5.8750	9.4375	1.500 x 1.500 x 8.50	4.7500	8.2500	1.250 x 1.250 x 7.50	3.9375	7.0625	1.000 x 1.000 x 6.50
71	6.6875	10.6250	1.750 x 1.250 x 9.75	5.5000	9.4375	1.250 x 1.250 x 8.50	4.3125	7.0625	1.000 x 1.000 x 6.50

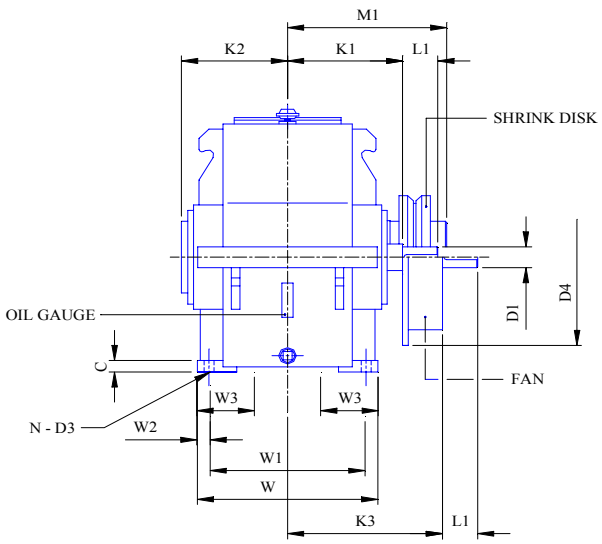
Unit Size	Dimensions										
	E	K_1	K_2	L_3	L_4	L_5	L_6	A	H	W	C
18	12.20	7.48	7.09	24.02	10.63	7.48	30.31	7.87	17.80	11.50	0.79
22	14.96	8.66	7.87	28.74	12.20	9.06	35.04	9.84	22.09	13.07	0.79
26	17.72	10.24	9.45	33.07	13.39	10.24	39.37	11.02	25.20	16.06	1.10
32	21.26	12.01	11.02	39.37	14.96	11.81	45.67	13.98	30.12	19.29	1.10
38	25.59	12.99	12.20	46.06	17.72	13.78	53.94	15.75	33.86	20.87	1.10
45	30.31	15.35	14.57	54.72	20.08	16.14	62.60	19.69	40.12	25.59	1.38
50	34.84	16.54	15.75	61.81	22.64	17.91	71.26	22.05	44.06	27.95	1.38
56	37.01	18.50	17.32	66.14	24.41	19.69	75.59	24.80	48.78	30.71	1.57
61	41.73	20.67	19.69	73.62	26.38	21.65	83.07	27.95	54.29	35.43	1.77
66	43.70	20.87	20.08	78.35	27.95	23.23	87.80	29.53	57.83	36.22	1.77
71	47.44	22.83	22.05	84.25	30.51	25.00	95.28	31.50	60.98	39.76	1.97

* For construction purposes use certified dimension prints only

* A: Tolerance +0.000 -0.030

Double Reduction / Parallel Shaft DH2





Unit: inch

Unit Size	Low Speed Shaft					
	Solid Shaft				Hollow Shaft	
	WT (lbs)	D_2	L_2	Key	Wt (lbs)	
18	627	3.1250	5.5000	0.75 x 0.75 x 5.00	577	
22	1034	3.9375	7.0625	1.00 x 1.00 x 6.50	951	
26	1639	4.7500	8.2500	1.25 x 1.25 x 7.50	1508	
32	2860	5.5000	9.4375	1.25 x 1.25 x 8.50	2631	
38	4191	6.6875	10.6250	1.75 x 1.25 x 9.25	3856	
45	6930	7.8750	13.7500	2.00 x 1.50 x 12.50	6376	
50	9152	8.6875	13.7500	2.00 x 1.50 x 12.50	8420	
56	11374	9.4375	15.7500	2.50 x 1.75 x 14.50	10464	
61	15620	10.6250	17.6875	2.50 x 1.75 x 16.00	14370	
66	17028	11.4375	17.6875	3.00 x 2.00 x 16.00	15666	
71	21362	12.1875	19.6875	3.00 x 2.00 x 18.00	19653	

Refer to Hollow Output Shaft Design on pages 38 and 39

Unit Size	Dimensions								Fan Cooling		Oil Capacity
	S_1	S_2	S_3	W_1	W_2	W_3	D_3	N	D_4	K_3	Gallons
18	6.10	5.31	1.38	10.24	0.63	2.20	0.55	10	13.19	11.02	3.4
22	7.68	6.50	1.38	11.42	0.83	2.60	0.71	10	16.93	12.20	5.5
26	8.66	7.48	1.57	13.98	1.04	3.50	0.87	10	16.93	13.78	8.5
32	9.84	8.86	1.97	16.93	1.18	3.74	1.02	10	18.90	15.55	17
38	12.01	10.63	1.77	18.31	1.28	3.94	1.02	10	18.90	16.54	22
45	14.37	12.80	1.77	22.44	1.57	4.72	1.30	10	21.26	18.90	45
50	15.35	14.17	2.56	25.20	1.38	4.92	1.30	10	22.64	18.90	63
56	17.32	15.35	2.36	27.17	1.77	5.31	1.54	10	25.00	20.87	87
61	18.70	16.93	2.95	31.50	1.97	6.10	1.77	10	25.00	23.03	124
66	20.28	18.11	2.95	32.28	1.97	6.30	1.77	10	28.94	23.23	145
71	21.46	19.29	3.54	35.83	1.97	6.61	1.77	10	28.94	25.20	180

*Shaft diameter under 3.000: +0.000 -0.0005 Shaft diameters 3.000 and over +0.000 -0.001

Triple Reduction / Parallel Shaft DH3

Permissible Transmitting Power Ratings Unit: HP

Nominal Ratio	Speed		Unit Size										
	Input Rpm	Output Rpm	18	22	26	32	38	45	50	56	61	66	71
			Mechanical HP Rating										
28	1750	63	73	130	210	350	630	970	1430	1740	-	-	-
	1170	42	50	88	145	240	430	660	970	1180	1790	2020	2710
	870	31	38	67	110	180	320	500	740	900	1340	1520	2030
31.5	1750	56	70	120	180	310	550	860	1280	1540	-	-	-
	1170	37	48	82	125	210	370	590	870	1050	1640	1700	2390
	870	28	36	62	95	160	285	440	660	790	1230	1280	1790
35.5	1750	49	60	110	160	300	530	780	1150	1380	-	-	-
	1170	33	41	75	110	205	360	530	780	940	1460	1560	2160
	870	25	31	57	85	155	275	400	590	710	1100	1170	1620
40	1750	44	54	97	145	265	480	750	1020	1250	1660	2040	-
	1170	29	37	66	100	180	330	510	690	850	1230	1390	1950
	870	22	28	50	75	135	250	390	530	640	860	1050	1460
45	1750	39	49	86	130	230	420	680	910	1150	1520	1970	-
	1170	26	33	58	90	155	285	460	620	780	1030	1340	1750
	870	19	25	44	67	120	215	350	470	590	780	1010	1310
50	1750	35	44	76	125	210	380	620	740	880	1370	1720	-
	1170	23	30	52	85	145	260	420	510	600	930	1170	1560
	870	17	23	39	65	110	195	320	380	450	710	890	1170
56	1750	31	40	70	115	195	340	550	730	860	1310	1550	-
	1170	21	27	48	78	135	230	370	500	585	890	1050	1260
	870	16	21	36	59	100	175	285	380	440	670	800	950
63	1750	28	33	60	105	180	295	480	650	780	1120	1350	1680
	1170	19	22	41	72	125	200	330	440	530	760	920	1140
	870	14	17	31	54	93	150	250	330	400	580	700	870
71	1750	25	30	54	92	160	265	430	580	710	1100	1180	1580
	1170	16	20	37	63	110	180	290	400	480	750	800	1070
	870	12	15	28	47	82	135	220	300	370	570	610	810
80	1750	22	27	49	82	145	230	390	520	660	970	1050	1450
	1170	15	18	33	56	100	155	270	350	450	660	710	990
	870	11	14	25	42	75	120	200	265	340	500	540	750
90	1750	19	24	43	73	125	210	340	450	580	860	970	1290
	1170	13	16	29	50	85	145	230	310	400	580	660	880
	870	10	12	22	38	64	110	175	230	300	440	500	660
100	1750	17.5	-	38	68	110	190	310	400	510	780	890	1120
	1170	11.7	-	26	46	75	130	210	275	350	530	610	760
	870	8.7	-	20	35	57	98	160	205	265	400	460	580
112	1750	15.6	-	35	59	100	175	280	360	460	680	780	1020
	1170	10.4	-	24	40	68	120	190	245	310	460	530	690
	870	7.8	-	18	30	52	90	145	185	235	350	400	530

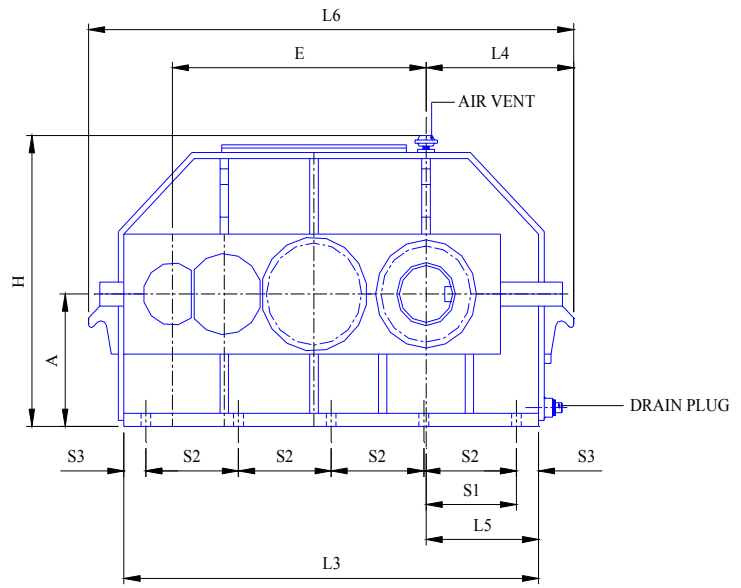
Thermal Ratings

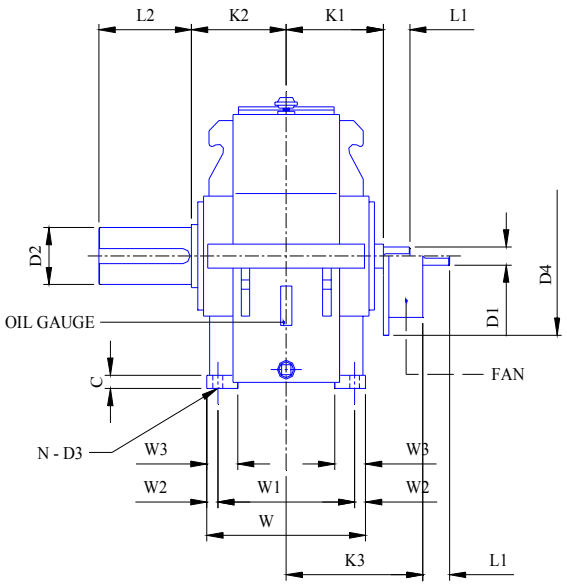
Ratio	Speed Input Rpm	Unit Size										
		18	22	26	32	38	45	50	56	61	66	71
		Without Auxiliary Cooling										
28 - 45	1750	66	97	130	181	243	353	453	491	664	720	854
	1170	62	90	122	169	228	330	425	460	622	674	800
	870	59	84	115	160	214	311	399	433	586	635	753
51 - 112	1750	59	86	117	161	217	315	406	440	595	645	764
	1170	56	82	111	154	208	302	389	421	570	617	732
	870	55	80	109	150	202	294	378	409	554	601	712
		With Fan Cooling										
28 - 45	1750	83	119	164	225	304	440	567	614	830	899	1067
	1170	75	109	149	205	276	399	516	558	755	818	971
	870	68	99	135	188	252	365	471	508	689	747	886
51 - 112	1750	-	107	146	202	272	394	508	550	743	806	956
	1170	-	101	134	186	255	362	472	511	690	751	889
	870	-	94	127	177	239	345	444	480	650	705	836

Triple Reduction / Parallel Shaft DH3

Nominal Ratio	Unit Size										
	18	22	26	32	38	45	50	56	61	66	71
Permissible Output Torque Rating										Unit: 1000 in-lb	
28	70.8	126	203	337	604	929	1404	1705	2605	2939	3931
31.5	76.7	133	198	334	599	936	1400	1682	2685	2784	3919
35.5	73.3	138	198	361	643	972	1399	1677	2707	2892	3954
40	74.0	135	200	364	655	1050	1398	1710	2346	2883	3922
45	75.8	135	202	353	649	1056	1379	1740	2340	3033	3998
50	76.4	132	215	362	660	1069	1277	1516	2431	3052	3987
56	78.3	134	223	381	660	1045	1411	1659	2562	3031	3634
63	73.3	129	230	388	645	1034	1404	1682	2414	2909	3629
71	72.9	131	227	391	648	1049	1401	1713	2689	2885	3916
80	74.7	136	230	401	636	1062	1421	1800	2681	2902	3923
90	74.7	135	229	391	650	1051	1411	1815	2682	3025	3932
100	-	130	233	380	646	1047	1379	1755	2683	3061	3927
112	-	135	228	389	661	1077	1380	1761	2663	3055	3923
Actual Gearing Ratio											
28	28.000	28.101	27.874	27.819	27.666	27.646	28.335	28.295	28.081	28.081	28.000
31.5	31.630	32.067	31.808	31.130	31.466	31.442	31.586	31.541	31.614	31.614	31.652
35.5	35.280	36.101	35.809	34.773	35.011	35.998	35.129	35.080	35.789	35.789	35.333
40	39.565	40.221	39.895	39.642	39.408	40.426	39.559	39.504	40.800	40.800	38.818
45	44.667	45.208	44.842	44.377	44.613	44.842	43.746	43.684	44.454	44.454	44.100
50	50.105	50.105	49.700	49.781	50.152	49.781	49.816	49.745	51.235	51.235	49.333
56	56.547	55.222	56.000	56.468	56.053	54.865	55.803	55.725	56.468	56.468	55.676
63	64.129	62.322	63.200	62.235	63.158	62.235	62.368	62.281	62.235	62.235	62.368
71	70.113	70.123	71.111	70.585	70.637	70.471	69.754	69.656	70.585	70.585	71.565
80	79.832	79.875	81.000	79.817	79.876	78.658	78.878	78.767	79.817	79.817	78.122
90	89.825	90.592	90.592	90.381	89.335	89.211	90.508	90.381	90.047	90.047	88.011
100	99.753	98.892	98.892	99.674	98.230	97.518	99.520	99.380	99.305	99.305	101.238
112	112.222	111.579	111.579	112.451	109.072	111.067	110.702	110.546	113.082	113.082	111.038
Rotational Inertia WR²										Unit: lb-ft²	
28	0.2002	0.7402	1.1388	3.2552	7.4452	17.4574	41.7194	43.8548	98.1631	102.951	218.334
31.5	0.1741	0.6548	0.9822	2.6763	6.2731	14.7432	35.0572	36.7940	83.0640	86.908	186.542
35.5	0.1458	0.5647	0.8351	2.2824	5.3810	12.5747	30.9100	32.3383	70.9354	74.029	154.645
40	0.1248	0.4669	0.6833	1.9455	4.5838	8.4062	25.4483	26.6251	60.2873	63.044	132.551
45	0.1058	0.3834	0.5647	1.6228	3.7534	7.8333	21.9843	22.9666	51.2098	53.502	112.802
50	0.0878	0.3578	0.5030	1.3381	3.2694	7.3787	18.5868	19.4030	41.4015	43.352	98.595
56	0.0835	0.3483	0.4660	1.2480	2.9989	7.0181	17.3768	18.0743	39.9495	41.610	94.481
63	0.0693	0.2951	0.3910	1.0961	2.4532	5.7654	13.7325	14.1548	35.0193	36.182	77.057
71	0.0579	0.2406	0.3094	0.8826	2.0974	4.6835	11.5734	11.9388	28.3998	29.173	65.099
80	0.0498	0.2017	0.2600	0.7402	1.7510	4.2232	9.6754	9.9838	23.7780	24.404	53.734
90	0.0470	0.1955	0.2482	0.7023	1.6893	4.0192	9.2578	9.5140	22.2928	22.801	51.542
100	-	0.1713	0.2178	0.6074	1.5327	3.2931	8.1285	8.3989	19.2084	19.636	44.102
112	-	0.1405	0.1803	0.4982	1.2812	2.7474	6.5056	6.8995	16.1525	16.504	37.634

Triple Reduction / Parallel Shaft DH3





Unit: inch

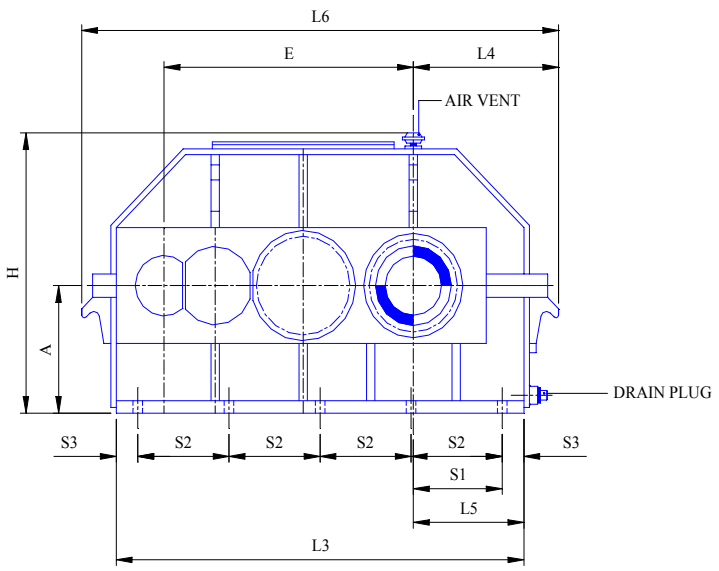
High Speed Shaft						
Unit	**Ratio: 28 - 63**			**Ratio: 71 - 112**		
Size	**D_1**	**L_1**	**Key**	**D_1**	**L_1**	**Key**
18	1.0000	1.5625	0.250 x 0.250 x 1.40	0.8125	1.3750	0.188 x 0.188 x 1.25
22	1.8575	2.0000	0.250 x 0.250 x 1.80	1.0000	1.5625	0.250 x 0.250 x 1.40
26	1.5000	2.3750	0.375 x 0.375 x 2.15	1.1250	2.0000	0.250 x 0.250 x 1.80
32	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15
38	2.1875	3.5625	0.500 x 0.500 x 3.25	1.6250	2.7500	0.375 x 0.375 x 2.50
45	2.5625	4.1250	0.625 x 0.625 x 3.75	2.0000	3.1250	0.500 x 0.500 x 2.75
50	2.9375	4.7500	0.750 x 0.750 x 5.00	2.3750	4.1250	0.625 x 0.625 x 3.75
56	3.1250	5.5000	0.758 x 0.750 x 5.00	2.5625	4.1250	0.625 x 0.625 x 3.75
61	3.5625	6.3125	0.875 x 0.875 x 5.75	2.9375	4.7500	0.750 x 0.750 x 4.25
66	3.9375	7.0625	1.000 x 1.000 x 6.50	3.1250	5.5000	0.750 x 0.750 x 5.00
71	4.3125	7.0625	1.000 x 1.000 x 6.50	3.5625	6.3125	0.875 x 0.875 x 5.75

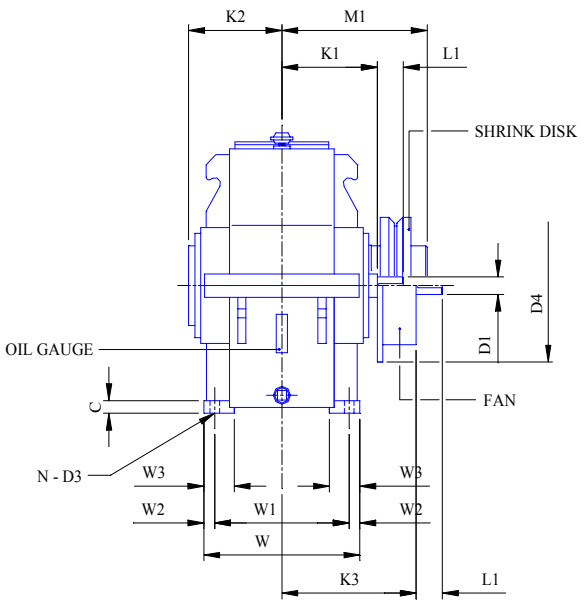
Unit	**Dimensions**										
Size	**E**	**K_1**	**K_2**	**L_3**	**L_4**	**L_5**	**L_6**	**A**	**H**	**W**	**C**
18	15.75	6.89	6.69	26.38	10.43	7.28	32.68	7.87	17.52	10.63	0.79
22	19.88	7.68	7.48	32.28	11.61	8.46	38.58	9.84	20.67	12.20	0.79
26	22.64	8.66	8.46	37.01	13.19	10.04	43.31	11.02	24.21	14.17	1.10
32	27.56	10.24	9.84	44.49	15.55	11.61	52.36	13.98	29.13	16.93	1.10
38	32.87	11.81	11.22	52.36	17.52	13.58	60.24	15.75	34.25	19.29	1.10
45	38.98	14.17	13.78	61.81	20.87	16.14	71.26	19.69	40.55	23.62	1.38
50	45.28	15.75	15.35	72.05	24.41	19.69	81.50	22.05	44.29	26.77	1.38
56	47.44	15.75	15.35	75.20	25.39	20.67	84.65	24.80	48.43	26.77	1.57
61	54.33	18.50	18.11	85.43	28.15	22.64	96.46	27.95	53.94	32.28	1.77
66	56.30	18.50	18.11	88.98	29.72	24.21	100.00	29.53	57.87	32.28	1.77
71	62.60	20.08	19.69	98.43	31.89	26.38	109.45	31.50	61.81	35.43	1.97

* For construction purposes use certified dimension prints only

* A: Tolerance +0.000 -0.030

Triple Reduction / Parallel Shaft DH3





Unit: inch

Unit Size	Low Speed Shaft					
	Solid Shaft				Hollow Shaft	
	WT (lbs)	D_2	L_2	Key	Wt (lbs)	
18	649	3.1250	5.5000	0.75 x 0.75 x 5.00	597	
22	1001	3.9375	7.0625	1.00 x 1.00 x 6.50	921	
26	1606	4.7500	8.2500	0.25 x 0.25 x 7.50	1478	
32	2530	5.5000	9.4375	1.25 x 1.25 x 8.50	2328	
38	3850	6.6875	10.6250	1.75 x 1.25 x 9.50	3542	
45	6930	7.8750	13.7500	2.00 x 2.00 x 12.50	6376	
50	9064	8.6875	13.7500	2.00 x 2.00 x 12.50	8339	
56	10835	9.4375	15.7500	2.50 x 1.75 x 14.50	9968	
61	16269	10.2500	17.6875	2.50 x 1.75 x 16.00	14967	
66	18359	11.0000	17.6875	2.50 x 1.75 x 16.00	16890	
71	23430	11.8125	19.6875	3.00 x 2.00 x 18.00	21556	

Refer to Hollow Output Shaft Design on pages 38 and 39

Unit Size	Dimensions								Fan Cooling		Oil Capacity Gallons
	S_1	S_2	S_3	W_1	W_2	W_3	D_3	N	D_4	K_3	
18	5.91	7.87	1.38	9.06	0.79	2.17	0.55	8	10.43	10.04	3.2
22	6.10	6.89	2.36	10.63	0.79	2.36	0.71	10	12.20	11.22	6.3
26	8.07	8.27	1.97	12.20	0.98	2.76	0.87	10	13.19	12.20	11
32	8.66	9.65	2.95	14.57	1.18	3.54	1.02	10	13.19	13.78	18
38	10.24	11.42	3.35	16.93	1.18	3.74	1.02	10	16.93	15.35	29
45	13.58	14.17	2.56	20.47	1.57	4.92	1.30	10	16.93	17.72	50
50	16.73	16.54	2.95	23.62	1.57	5.51	1.30	10	18.90	19.29	74
56	17.72	17.32	2.95	23.23	1.77	5.51	1.54	10	18.90	19.29	90
61	19.29	19.69	3.35	27.95	2.17	6.89	1.77	10	21.26	22.05	140
66	20.67	20.47	3.54	27.95	2.17	6.89	1.77	10	21.26	22.05	156
71	22.83	22.83	3.54	31.10	2.17	7.48	1.77	10	22.64	22.44	195

*Shaft diameter under 3.000: +0.000 -0.0005 Shaft diameters 3.000 and over +0.000 -0.001

Quadruple Reduction / Parallel Shaft DH4

Permissible Transmitting Power Ratings Unit : HP

Nominal Ratio	Speed		Unit Size									
	Input Rpm	Output Rpm	22	26	32	38	45	50	56	61	66	71
			Mechanical HP Rating									
112	1750	15.6	33	56	93	155	260	320	420	620	760	900
	1170	10.4	22	38	63	105	175	215	285	420	520	610
	870	7.8	17	29	48	80	135	165	215	320	390	460
125	1750	14.0	30	50	82	140	225	285	375	550	680	800
	1170	9.4	20	34	56	95	155	195	255	375	460	540
	870	7.0	16	26	42	72	115	150	195	285	350	410
140	1750	12.5	27	43	73	125	200	255	340	500	610	720
	1170	8.4	18	29	50	95	135	175	230	340	420	490
	870	6.2	14	22	38	64	105	130	175	260	315	370
160	1750	10.9	24	38	67	115	180	230	300	440	550	650
	1170	7.3	16	26	46	78	120	155	205	300	375	440
	870	5.4	12	20	35	59	93	120	155	230	285	335
180	1750	9.7	21	34	61	100	165	205	270	390	490	580
	1170	6.5	14	23	42	68	110	140	185	265	335	395
	870	4.8	11	18	31	52	85	105	140	200	250	300
200	1750	8.8	19	31	53	90	145	180	240	350	430	510
	1170	5.9	13	21	36	61	99	120	165	240	290	350
	870	4.4	10	16	27	46	75	93	125	180	220	265
224	1750	7.8	17	28	47	80	130	160	210	310	390	460
	1170	5.2	12	19	32	54	88	110	145	210	265	315
	870	3.9	9	14	24	41	67	82	110	160	200	240
250	1750	7.0	15	25	42	69	115	140	190	280	340	400
	1170	4.7	10	17	29	47	78	95	130	190	230	270
	870	3.5	8	13	22	36	59	72	98	145	175	205
280	1750	6.3	13	22	37	62	105	125	170	250	310	360
	1170	4.2	9	15	25	42	71	85	115	170	210	245
	870	3.1	7	11	19	32	54	64	88	130	160	185
315	1750	5.6	12	20	33	55	92	115	150	220	280	330
	1170	3.7	8	14	22	37	63	78	100	150	190	225
	870	2.8	6	10	17	28	47	59	77	115	145	170
355	1750	4.9	10	18	30	49	82	100	135	200	250	290
	1170	3.3	7	12	20	33	56	68	92	135	170	200
	870	2.5	5	9	16	25	42	52	70	105	130	150
400	1750	4.4	9	16	26	44	73	90	120	180	220	260
	1170	2.9	6	11	18	30	50	61	82	120	150	180
	870	2.2	5	8	13	23	38	46	62	93	115	135
450	1750	3.9	8	14	23	39	65	80	110	160	200	230
	1170	2.6	5	10	16	27	44	54	75	110	135	155
	870	1.9	4	7	12	20	33	41	57	82	105	120
500	1750	3.5	7	13	21	33	59	72	96	140	175	210
	1170	2.3	5	9	14	22	40	49	65	96	120	140
	870	1.7	4	7	11	17	30	37	49	73	91	110

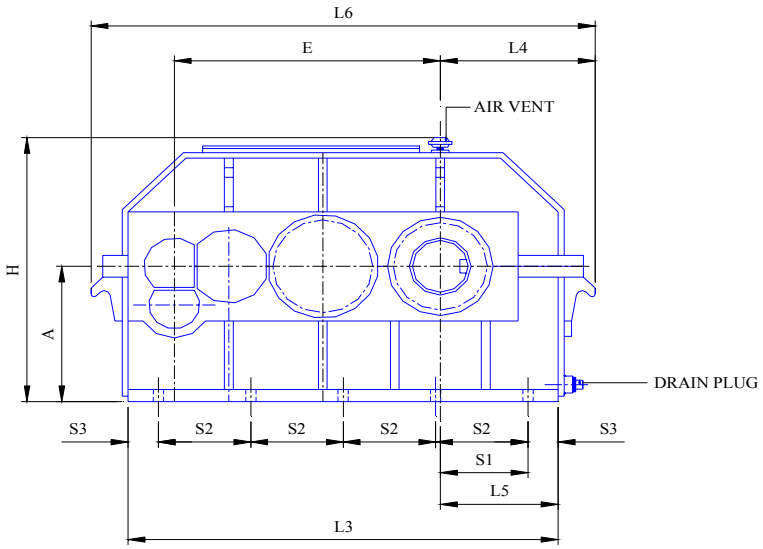
Thermal Ratings

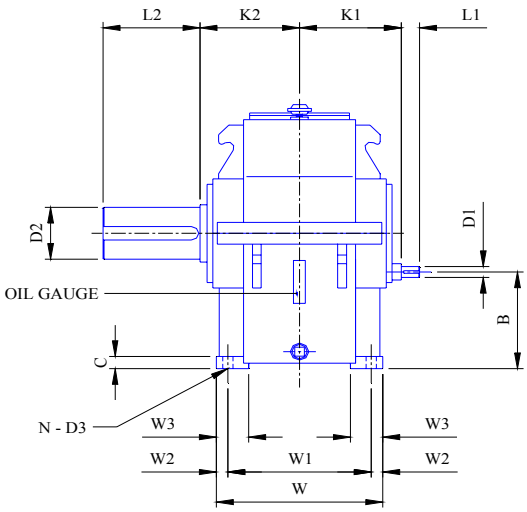
Ratio	Speed Input Rpm	Unit Size									
		22	26	32	38	45	50	56	61	66	71
		Without Auxiliary Cooling									
112-280	1750	63	87	123	172	243	311	345	452	492	584
	1170	59	82	115	161	228	292	323	424	462	548
	870	55	76	107	150	213	273	303	398	434	515
315-500	1750	56	78	111	154	218	280	310	408	444	527
	1170	52	72	105	145	205	263	291	382	417	495
	870	50	68	99	108	196	252	279	366	399	473
		With Fan Cooling									
112-280	1750	86	119	169	235	331	425	472	618	673	800
	1170	79	110	157	217	307	394	437	572	623	741
	870	72	102	145	201	286	366	406	532	579	689
315-500	1750	79	110	157	217	307	394	438	574	625	744
	1170	71	99	142	197	279	358	398	521	568	677
	870	66	92	131	182	259	332	370	485	528	629

Quadruple Reduction / Parallel Shaft DH4

Nominal Ratio	Unit Size									
	22	26	32	38	45	50	56	61	66	71
Permissible Output Torque Rating									Unit: 1000 in-lb	
112	125	215	353	585	978	1198	1570	2349	2835	3497
125	128	217	355	603	947	1214	1598	2371	2885	3465
140	129	208	356	606	940	1209	1609	2468	2963	3468
160	128	206	364	621	964	1227	1598	2439	3001	3526
180	127	208	373	607	990	1238	1628	2344	2964	3479
200	129	213	359	605	976	1222	1627	2389	2888	3484
224	130	217	351	606	992	1214	1591	2331	2887	3519
250	130	220	354	590	967	1197	1622	2389	2855	3420
280	123	211	351	596	1002	1195	1623	2415	2947	3443
315	129	219	356	603	993	1244	1620	2372	2972	3569
355	121	222	368	601	1002	1210	1630	2447	3010	3599
400	121	219	348	589	983	1197	1594	2407	2895	3548
450	121	215	347	589	988	1181	1622	2436	2998	3491
500	121	228	358	563	1001	1202	1600	2428	2983	3446
Actual Gearing Ratio										
112	110.44	112.00	112.94	110.03	109.73	109.28	109.13	110.58	110.58	113.34
125	124.76	126.51	128.34	125.56	122.79	124.29	124.11	125.77	125.77	126.34
140	139.16	141.12	139.83	141.35	137.16	138.30	138.10	143.99	143.99	140.52
160	156.06	158.26	160.49	157.48	156.36	155.66	155.44	161.70	161.70	158.24
180	176.19	178.67	180.16	177.01	175.04	176.22	175.97	179.37	179.37	174.98
200	197.64	200.42	202.10	196.18	196.36	198.10	197.82	199.12	199.12	199.26
224	223.05	226.19	222.73	221.05	222.73	221.41	221.10	219.46	219.46	223.21
250	252.95	256.52	246.11	249.47	245.48	249.47	249.12	248.94	248.94	249.47
280	276.55	280.45	280.06	280.70	278.42	279.02	278.62	281.89	281.89	279.02
315	314.89	319.33	314.63	319.74	314.83	315.51	315.07	314.63	314.63	315.51
355	354.31	359.30	356.85	357.60	356.50	352.87	352.38	356.85	356.85	362.02
400	393.47	399.01	390.29	390.36	393.36	388.01	387.46	390.07	390.07	398.08
450	442.65	448.89	448.21	440.44	443.56	430.83	430.23	444.27	444.27	442.81
500	504.21	511.31	506.84	498.05	495.08	487.19	486.50	502.38	502.38	483.38
Rotational Inertia WR^2									Unit: $lb\text{-}ft^2$	
112	0.0949	0.1518	0.4033	0.9917	2.2207	5.5613	5.6989	13.0872	13.7230	29.2112
125	0.0854	0.1281	0.3701	0.8351	2.0025	4.8401	5.1485	11.0752	11.5877	26.3309
140	0.0807	0.1091	0.3417	0.7213	1.8364	4.3561	4.7264	9.4571	9.8699	23.7638
160	0.0759	0.0902	0.3179	0.6121	1.6940	4.0429	4.3893	8.0382	8.4037	22.5205
180	0.0617	0.0712	0.2515	0.4982	1.4235	3.3786	3.6728	6.8235	7.1320	18.7007
200	0.0569	0.0664	0.2515	0.4366	1.3381	3.1793	3.4355	5.5186	5.7796	17.6757
224	0.0569	0.0617	0.2515	0.3986	1.3666	3.2362	3.5067	5.3241	5.5471	17.9557
250	0.0475	0.0475	0.1993	0.3274	1.1483	2.7237	2.9373	4.6692	4.8211	15.0706
280	0.0475	0.0380	0.1946	0.2752	1.1104	2.6478	2.8661	3.7866	3.8863	14.6056
315	0.0380	0.0332	0.1566	0.2325	0.8873	2.1353	2.2967	3.1698	3.2504	11.6256
355	0.0380	0.0285	0.1613	0.2230	0.9301	2.2112	2.3868	2.9705	3.0369	12.1856
400	0.0380	0.0285	0.1566	0.2040	0.8873	2.1828	2.3583	2.5576	2.6146	12.0005
450	0.0380	0.0285	0.1518	0.1708	0.8731	2.1069	2.2967	2.1496	2.1970	11.7205
500	0.0285	0.0285	0.1281	0.1566	0.7355	1.7652	1.9123	1.7889	1.8269	10.0455

Quadruple Reduction / Parallel Shaft DH4





Unit: inch

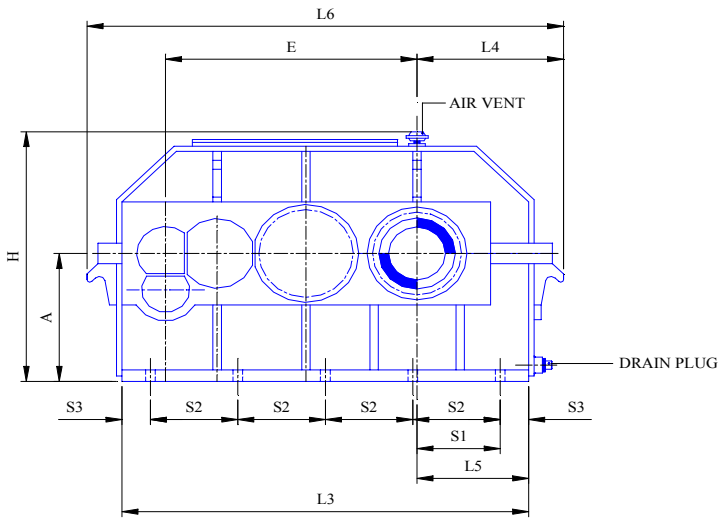
High Speed Shaft						
Unit	**Ratio: 112-280**			**Ratio: 315-500**		
Size	**D_1**	**L_1**	**Key**	**D_1**	**L_1**	**Key**
22	0.8750	1.3750	0.188 x 0.188 x 1.25	0.7500	1.3750	0.188 x 0.188 x 1.25
26	1.0000	1.5625	0.250 x 0.250 x 1.40	0.8125	1.3750	0.188 x 0.188 x 1.25
32	1.2500	2.3750	0.250 x 0.250 x 1.80	1.1250	2.0000	0.250 x 0.250 x 1.80
38	1.5000	2.3750	0.375 x 0.375 x 2.15	1.1875	2.0000	0.250 x 0.250 x 1.80
45	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15
50	2.1875	3.5625	0.500 x 0.500 x 3.25	1.6250	2.7500	0.375 x 0.375 x 2.50
56	2.3750	4.1250	0.625 x 0.625 x 3.75	1.7500	2.7500	0.375 x 0.375 x 2.50
61	2.5625	4.1250	0.625 x 0.625 x 3.75	2.0000	3.1250	0.500 x 0.500 x 2.75
66	2.7500	4.3300	0.625 x 0.625 x 4.00	2.1875	3.5625	0.500 x 0.500 x 3.25
71	2.9375	4.7500	0.750 x 0.750 x 4.25	2.3750	4.1250	0.625 x 0.625 x 3.75

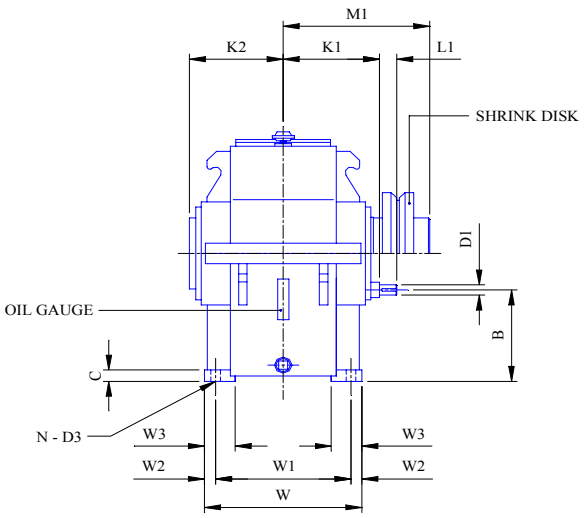
Unit	**Dimensions**										
Size	**E**	**K_1**	**K_2**	**L_3**	**L_4**	**L_5**	**L_6**	**A**	**H**	**B**	**C**
22	19.88	7.48	7.48	31.89	11.61	8.46	38.19	9.84	20.67	6.30	0.79
26	22.64	8.66	8.46	36.61	13.19	10.04	42.91	12.40	24.21	8.86	1.10
32	27.56	10.24	9.84	44.49	15.55	11.61	52.36	13.98	29.13	9.57	1.10
38	32.87	11.81	11.22	51.57	17.52	13.58	59.45	15.75	34.25	10.83	1.38
45	38.98	14.17	13.78	61.42	20.87	16.14	70.87	19.69	40.55	13.39	1.38
50	45.28	15.75	15.35	72.05	24.41	19.69	81.50	22.05	44.88	14.76	1.57
56	47.44	15.75	15.35	75.59	25.79	20.67	85.83	24.80	48.43	17.52	1.77
61	54.33	18.50	18.11	85.43	27.76	22.64	95.67	27.95	54.33	19.29	1.77
66	56.30	18.50	18.11	89.37	29.33	24.21	99.61	29.53	57.87	20.87	1.77
71	62.60	20.08	19.69	99.21	31.50	26.38	109.45	31.50	61.81	21.06	1.97

* For construction purposes use certified dimension prints only

* A: Tolerance +0.000 -0.030

Quadruple Reduction / Parallel Shaft DH4





Unit: inch

Unit Size	Low Speed Shaft					
	Solid Shaft				Hollow Shaft	
	WT (lbs)	D2	L2	Key	Wt (lbs)	
22	1025	3.9375	7.0625	1.00 x 1.00 x 6.50	974	
26	1455	4.7500	8.2500	1.25 x 1.25 x 7.50	1382	
32	2646	5.5000	9.4375	1.25 x 1.25 x 8.50	2514	
38	3968	6.6875	10.6250	1.75 x 1.25 x 9.50	3770	
45	6173	7.8750	13.7500	2.00 x 1.50 x 12.50	5864	
50	9370	8.6875	13.7500	2.00 x 1.50 x 12.50	8620	
56	11364	9.4375	15.7500	2.50 x 1.75 x 14.50	10446	
61	15322	10.6250	17.6875	2.50 x 1.75 x 16.00	14096	
66	17703	11.4375	17.6875	3.00 x 2.00 x 16.00	16287	
71	23148	12.1875	19.6875	3.00 x 2.00 x 18.00	21296	

Refer to Hollow Output Shaft Design on pages 38 and 39

Unit Size	Dimensions										Oil Capacity gallons
	S_1	S_2	S_3	W	W_1	W_2	W_3	D_3	N		
22	6.30	6.89	2.17	12.20	10.63	0.79	2.36	0.71	10		7
26	7.48	7.87	2.56	14.17	12.20	0.98	2.76	0.87	10		12
32	9.06	9.84	2.56	16.93	14.57	1.18	3.54	1.02	10		22
38	11.42	11.81	2.17	19.29	16.93	1.18	3.74	1.02	10		41
45	12.99	13.78	3.15	23.62	20.47	1.57	4.92	1.30	10		73
50	16.73	16.54	2.95	26.77	23.62	1.57	5.51	1.30	10		100
56	17.52	17.32	3.15	26.77	23.23	1.77	5.51	1.54	10		132
61	19.29	19.69	3.35	32.28	27.95	2.17	6.89	1.77	10		148
66	20.47	20.47	3.74	32.28	27.95	2.17	6.89	1.77	10		164
71	22.44	22.83	3.94	35.43	31.10	2.17	7.48	1.77	10		248

*Shaft diameter under 3.000: +0.000 -0.0005 Shaft diameters 3.000 and over +0.000 -0.001

Double Reduction / Right Angle DR2

Permissible Transmitting Power Ratings Unit : HP

Nominal Ratio	Speed		Unit Size								
	Input Rpm	Output Rpm	18	22	26	32	38	45	50	56	61
			Mechanical HP Rating								
	1750	313	230	380	570	-	-	-	-	-	-
5.6	1170	209	155	255	385	840	1490	-	-	-	-
	870	155	115	195	290	630	1110	1800	2500	3450	-
	1750	278	200	285	430	-	-	-	-	-	-
6.3	1170	186	135	195	290	700	1290	-	-	-	-
	870	138	100	145	220	520	970	1540	2040	2900	-
	1750	246	230	380	570	-	-	-	-	-	-
7.1	1170	165	155	255	385	840	1490	-	-	-	-
	870	123	115	195	290	630	1110	1800	2500	3450	-
	1750	219	200	285	430	-	-	-	-	-	-
8	1170	146	135	195	290	700	1290	2050	-	-	-
	870	109	100	145	220	520	970	1540	2040	2900	-
	1750	194	200	285	430	-	-	-	-	-	-
9	1170	130	135	195	290	700	1290	2050	-	-	-
	870	97	100	145	220	520	970	1540	2040	2600	-
	1750	175	160	230	410	780	-	-	-	-	-
10	1170	117	110	155	275	530	950	1700	2150	-	-
	870	87	82	115	210	400	710	1250	1600	2300	3150
	1750	156	120	180	330	670	1300	-	-	-	-
11.2	1170	104	82	120	225	450	880	1300	1700	2650	-
	870	78	62	92	170	340	660	970	1250	2000	2800
	1750	140	110	160	270	620	1030	-	-	-	-
12.5	1170	94	75	110	180	420	700	1100	1450	2200	3000
	870	70	57	82	140	315	520	820	1090	1640	2250
	1750	125	110	160	270	620	1030	-	-	-	-
14	1170	84	75	110	180	420	700	1100	1450	2050	3000
	870	62	57	82	140	315	520	820	1090	1530	2250
	1750	109	92	130	240	470	830	1280	-	-	-
16	1170	73	63	88	160	315	560	870	1250	1650	2350
	870	54	47	67	120	240	420	650	930	1240	1750
	1750	97	73	100	195	370	670	1100	1440	-	-
18	1170	65	50	68	130	205	450	740	970	1440	1900
	870	48	37	51	100	190	340	560	730	1070	1400

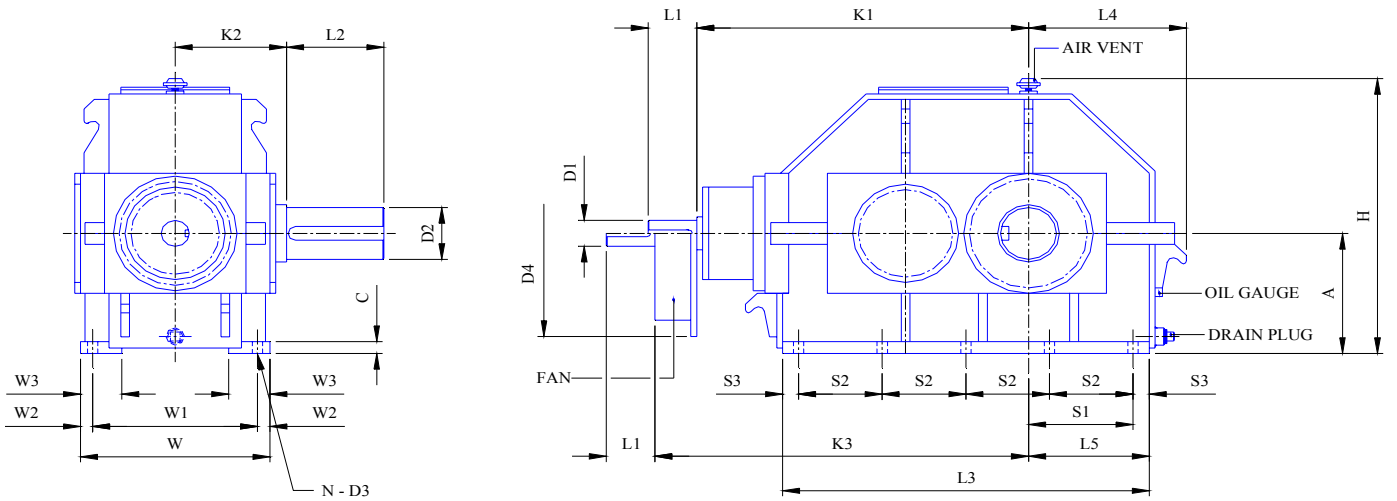
Thermal Ratings

Ratio	Speed	Unit Size								
	Input Rpm	18	22	26	32	38	45	50	56	61
		Without Auxiliary Cooling								
	1750	78	106	151	216	277	403	496	588	740
5.6 - 11.2	1170	75	102	145	208	267	389	477	567	712
	870	71	97	138	196	252	367	450	535	673
	1750	72	98	139	200	257	374	458	546	685
12.5 - 18	1170	68	94	133	189	244	354	434	516	649
	870	66	88	126	180	231	336	413	491	617
	With Fan Cooling									
	1750	137	186	264	378	485	706	867	1031	1296
5.6 - 11.2	1170	127	173	247	353	453	658	845	961	1209
	870	117	160	227	323	414	603	741	881	1107
	1750	126	172	245	349	449	654	803	954	1200
12.5 - 18	1170	117	158	225	320	413	601	737	877	1103
	870	107	145	206	296	379	552	678	807	1015

Double Reduction / Right Angle DR2

Nominal Ratio	Unit Size								
	18	22	26	32	38	45	50	56	61
Permissible Output Torque Rating								Unit: 1000 in-lb	
5.6	44.4	75.4	112.0	241	428	709	979	1370	-
6.3	43.2	63.6	94.6	231	414	678	899	1287	-
7.1	56.6	92.8	141.3	303	544	898	1219	1696	-
8	55.0	78.3	119.0	290	526	849	1119	1593	-
9	61.9	88.8	133.1	320	590	936	1263	1597	-
10	57.0	81.9	144.2	273	491	882	1131	1598	2250
11.2	47.3	69.5	130.1	260	506	756	990	1541	2174
12.5	48.1	70.2	118.0	268	444	709	936	1418	1961
14	53.8	79.5	132.0	304	510	800	1054	1490	2206
16	51.1	72.3	133.0	258	466	707	1021	1375	1963
18	45.2	62.7	120.9	229	420	678	888	1328	1772
Actual Gearing Ratio									
5.6	5.579	5.727	5.684	5.550	5.545	5.652	5.619	5.700	5.684
6.3	6.235	6.443	6.353	6.371	6.198	6.317	6.321	6.371	6.353
7.1	7.100	7.053	7.158	6.970	7.048	7.158	7.000	7.059	7.053
8	7.935	7.934	8.000	8.000	7.877	8.000	7.875	7.889	7.882
9	8.941	9.000	8.941	8.817	8.824	8.817	8.888	8.817	8.941
10	10.286	10.286	10.154	10.108	9.985	10.013	10.157	9.977	10.250
11.2	11.385	11.143	11.385	11.226	11.235	11.226	11.242	11.226	11.143
12.5	12.615	12.667	12.615	12.491	12.449	12.440	12.458	12.440	12.615
14	14.109	14.343	14.109	14.167	14.285	14.036	14.035	14.035	14.192
16	16.031	16.059	16.031	15.830	16.230	15.946	15.777	16.088	16.125
18	17.895	18.118	17.895	17.895	18.118	17.800	17.800	17.800	18.000
Rotational Inertia WR²								Unit: lb-ft²	
5.6	1.6703	3.8910	10.9756	27.4460	59.1010	130.734	214.728	413.194	721.748
6.3	1.4425	3.3786	9.3480	24.1434	52.5432	114.154	193.645	358.146	623.433
7.1	1.5279	3.5731	9.9459	24.9501	54.6073	116.745	200.236	380.262	680.337
8	1.3286	3.1271	8.5223	22.1552	48.9416	103.003	182.029	331.877	590.255
9	1.2622	2.9752	8.0098	21.6759	46.4931	100.996	175.139	319.430	566.117
10	1.1151	2.5576	6.8662	19.0328	38.7869	93.456	156.457	278.342	493.758
11.2	0.8589	1.9787	5.8745	15.1893	35.3087	76.995	129.073	240.580	414.822
12.5	0.7308	1.6134	4.6455	12.9068	27.7971	64.814	108.346	188.098	337.428
14	0.7118	1.5517	4.5221	12.5747	26.9573	61.697	104.337	185.113	327.354
16	0.5931	1.2812	3.8388	10.2353	20.5750	44.391	69.455	140.533	248.030
18	0.5030	1.1056	3.2552	8.5935	17.4385	37.373	57.972	117.490	206.713

Double Reduction / Right Angle DR2



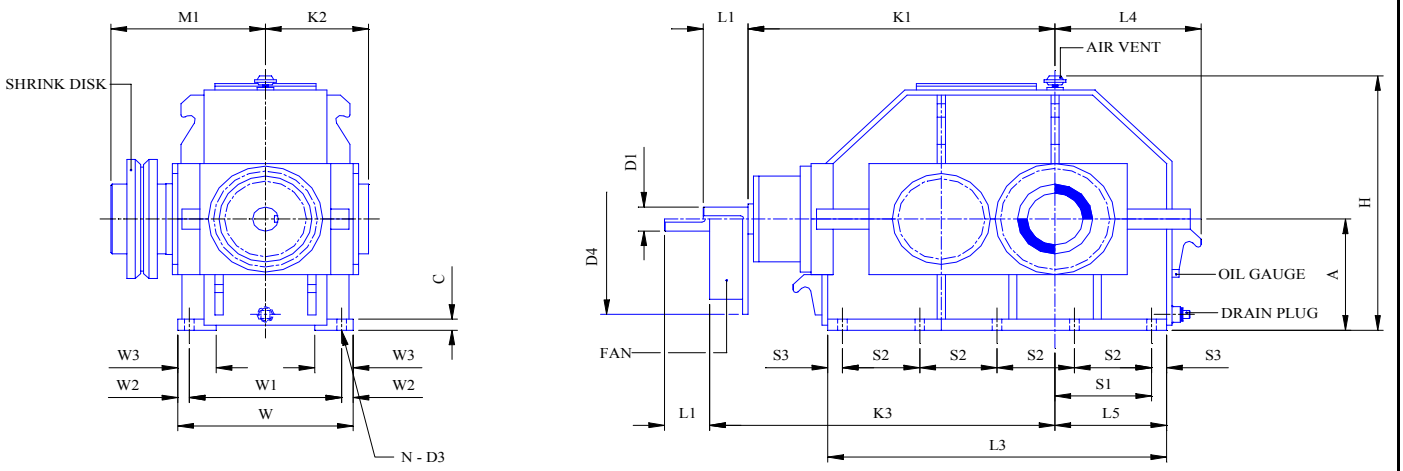
Unit: inch

High Speed Shaft						
Unit	Ratio: 5.6 - 10			Ratio: 11.2 - 18		
Size	D_1	L_1	Key	D_1	L_1	Key
18	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15
22	2.0000	3.1250	0.500 x 0.500 x 2.75	1.5625	2.7500	0.375 x 0.375 x 2.50
26	2.3750	4.1250	0.625 x 0.625 x 3.75	2.1875	3.5625	0.500 x 0.500 x 3.25
32	2.9375	4.7500	0.750 x 0.750 x 4.25	2.7500	4.7500	0.625 x 0.625 x 4.25
38	3.5625	6.3125	0.875 x 0.875 x 5.75	3.1250	5.5000	0.750 x 0.750 x 5.00
45	3.9375	7.0625	1.000 x 1.000 x 6.50	3.5625	6.3125	0.875 x 0.875 x 5.75
50	4.3125	7.0625	1.000 x 1.000 x 6.50	3.9375	7.0625	1.000 x 1.000 x 6.50
56	5.1250	8.2500	1.250 x 1.250 x 7.50	4.3125	7.0625	1.000 x 1.000 x 6.50
61	5.5000	9.4375	1.250 x 1.250 x 8.50	4.7500	8.2500	1.250 x 1.250 x 7.50

Unit	Dimensions										
Size	E	K1	K2	L3	L4	L5	L6	A	H	W	C
18		21.26	7.09	22.05	10.63	7.48		7.87	17.80	11.50	0.79
22		24.41	7.87	27.17	12.20	9.06		9.84	22.09	13.07	0.79
26		28.15	9.45	31.10	13.39	10.24		11.02	25.20	16.06	1.10
32		35.04	11.02	37.01	14.96	11.81		13.98	30.12	19.29	1.10
38		41.34	12.20	43.70	17.72	13.78		15.75	33.86	20.87	1.10
45		47.05	14.57	51.77	20.08	16.14		19.69	40.12	25.59	1.38
50		51.77	15.75	59.06	22.64	17.91		22.05	44.06	27.95	1.38
56		58.46	17.32	62.99	24.41	19.69		24.80	48.78	30.71	1.57
61		64.17	19.69	70.47	26.38	21.65		27.95	53.43	35.43	1.77

* For construction purposes use certified dimension prints only.

* A: Tolerance +0.000 -0.030



Unit: inch

Unit Size	Low Speed Shaft					
	Solid Shaft				Hollow Shaft	
	WT (lbs)	D2	L2	Key	Wt (lbs)	
18	693	3.1250	5.5000	0.75 x 0.75 x 5.00	638	
22	1078	3.9375	7.0625	1.00 x 1.00 x 6.50	992	
26	1694	4.7500	8.2500	1.25 x 1.00 x 7.50	1558	
32	2948	5.5000	9.4375	1.25 x 1.25 x 8.50	2712	*Refer to Hollow Output Shaft Design on pages 38 and 39*
38	4433	6.6875	10.6250	1.75 x 1.25 x 9.50	4078	
45	7194	7.8750	13.7500	2.00 x 1.50 x 12.50	6618	
50	9328	8.6875	13.7500	2.00 x 1.50 x 12.50	8582	
56	12276	9.4375	15.7500	2.50 x 1.75 x 14.50	11294	
61	16390	10.6250	17.6875	2.50 x 1.75 x 16.00	15079	

Unit Size	Dimensions								Fan Cooling		Oil Capacity gallons
	S_1	S_2	S_3	W_1	W_2	W_3	D_3	N	D_4	K_3	
18	6.30	4.92	1.18	10.24	0.63	2.20	0.55	10	16.93	24.80	2.9
22	7.68	6.10	1.38	11.42	0.83	2.60	0.71	10	16.93	27.95	5
26	8.86	7.09	1.38	13.98	1.04	3.50	0.87	10	18.90	31.69	7.4
32	9.84	8.27	1.97	16.93	1.18	3.74	1.02	10	22.64	37.40	14
38	12.01	10.04	1.77	18.31	1.28	3.94	1.02	10	25.00	43.70	20
45	14.27	12.01	1.87	22.44	1.57	4.72	1.30	10	28.94	49.41	40
50	15.16	13.39	2.76	25.20	1.38	4.92	1.30	10	28.94	54.13	58
56	17.32	14.57	2.36	27.17	1.77	5.31	1.54	10	32.68	60.83	77
61	18.70	16.14	2.95	31.50	1.97	6.10	1.77	10	32.68	66.54	111

* Shaft diameters 3.00 and over: +0.000 -0.001 * Shaft diameters under 3.000: +0.000 -0.0005

Triple Reduction / Right Angle DR3

Permissible Transmitting Power Ratings Unit: HP

Nominal Ratio	Speed		Unit Size										
	Input Rpm	Output Rpm	18	22	26	32	38	45	50	56	61	66	71
			Mechanical HP Rating										
	1750	88	71	150	235	400	600	-	-	-	-	-	-
20	1170	59	48	105	160	270	410	860	1290	1530	-	-	-
	870	44	37	77	120	205	310	620	970	1140	1870	-	-
	1750	78	71	150	235	400	600	-	-	-	-	-	-
22.4	1170	52	48	105	160	270	410	860	1220	1440	-	-	-
	870	39	37	77	120	205	310	620	910	1080	1610	-	-
	1750	70	71	140	235	390	600	-	-	-	-	-	-
25	1170	47	48	95	160	265	410	760	1030	1460	-	-	-
	870	35	37	72	120	200	310	550	770	1090	1530	1600	2060
	1750	63	71	115	220	380	600	-	-	-	-	-	-
28	1170	42	48	78	150	255	410	680	980	1140	1790	2070	-
	870	31	37	59	115	195	310	490	730	850	1340	1550	1910
	1750	56	60	105	200	300	450	-	-	-	-	-	-
31.5	1170	37	41	71	135	205	305	620	870	1020	1610	1850	-
	870	28	31	54	105	155	230	450	650	760	1200	1390	1700
	1750	49	58	95	160	300	450	-	-	-	-	-	-
35.5	1170	33	39	64	110	205	305	560	780	910	1450	1680	-
	870	25	30	49	82	155	230	420	580	680	1090	1260	1520
	1750	44	47	87	145	260	430	770	-	-	-	-	-
40	1170	29	32	59	98	175	290	520	690	800	1290	1480	1790
	870	22	24	45	75	135	220	395	520	600	970	1110	1340
	1750	39	36	74	125	190	350	670	920	1080	-	-	-
45	1170	26	24	50	85	125	235	450	620	730	1140	1320	1510
	870	19	19	38	64	95	180	345	470	550	850	990	1230
	1750	35	28	66	110	160	280	600	840	970	-	-	-
50	1170	23	19	45	75	110	190	410	570	660	1030	1130	1440
	870	17	14	34	56	82	145	310	430	500	780	850	1080
	1750	31	28	63	110	160	280	540	730	840	-	-	-
56	1170	21	19	42	75	110	190	360	490	570	910	1060	1280
	870	16	14	32	56	82	145	275	375	430	680	790	960
	1750	28	22	55	95	145	250	480	640	750	1210	1330	-
63	1170	19	15	37	65	100	170	320	430	510	820	900	1110
	870	14	11	28	49	75	125	245	330	385	620	680	830
	1750	25	22	47	79	130	250	350	510	610	950	1210	1450
71	1170	16	15	32	54	88	170	235	345	410	640	829	980
	870	12	11	24	41	67	125	180	260	315	490	620	740
	1750	22	19	41	71	110	200	300	460	550	850	1080	1300
80	1170	15	13	28	48	75	135	205	310	375	570	730	880
	870	11	10	21	37	57	100	155	235	280	430	550	670

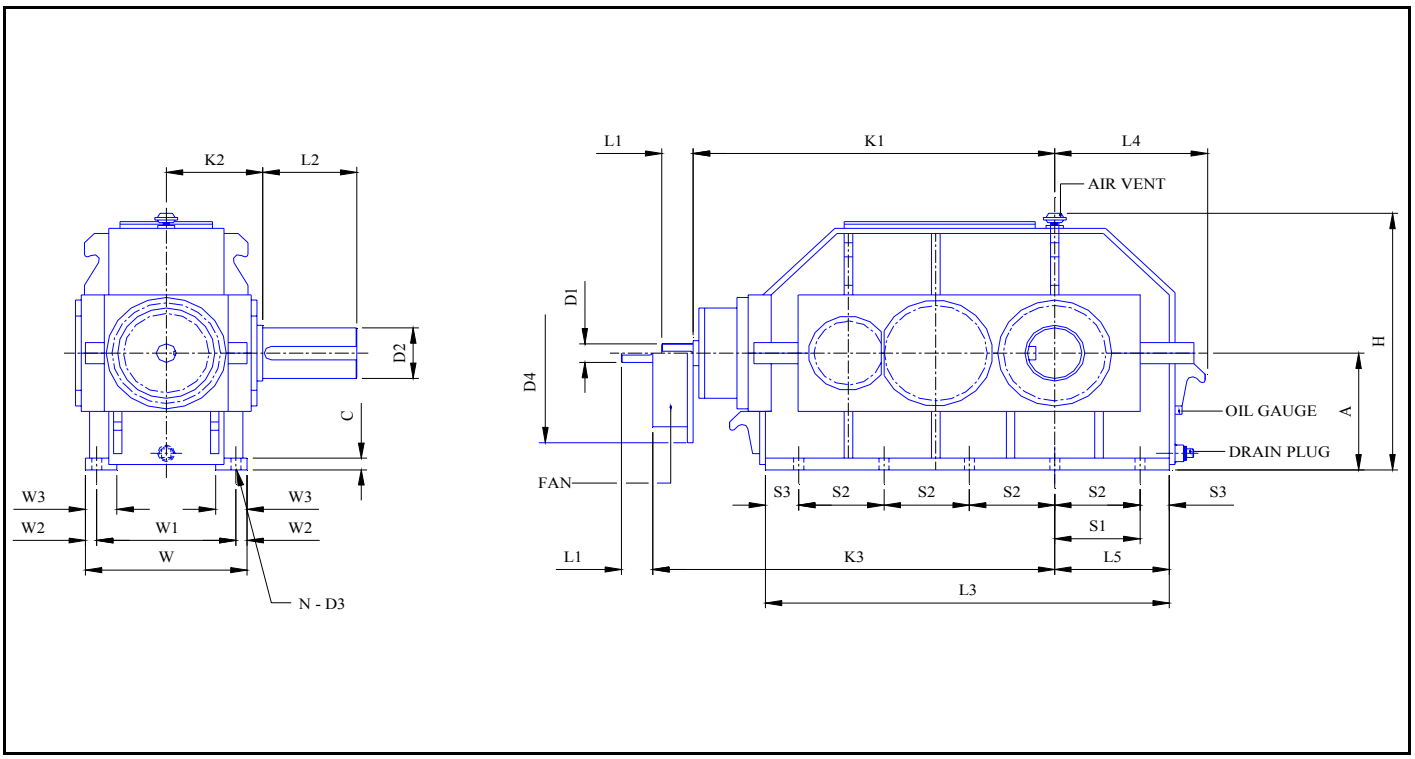
Thermal Ratings

Ratio	Speed Input Rpm	Unit Size										
		18	22	26	32	38	45	50	56	61	66	71
		Without Auxiliary Cooling										
	1750	56	82	111	154	208	302	389	421	570	617	732
20 - 35.5	1170	52	76	105	145	194	282	363	393	531	576	684
	870	50	72	98	135	182	264	340	369	499	540	641
	1750	50	72	99	137	185	267	345	373	504	547	649
40 - 80	1170	47	68	94	129	174	252	324	350	475	515	610
	870	46	66	88	123	166	240	310	335	453	491	582
		With Fan Cooling										
	1750	86	123	168	232	312	452	583	631	854	926	1098
20 - 35.5	1170	78	111	151	210	283	410	528	571	772	838	995
	870	70	102	138	190	257	373	480	519	702	761	903
	1750	75	109	149	205	277	401	516	559	756	820	973
40 - 80	1170	68	99	135	188	252	366	472	509	690	748	887
	870	64	92	126	173	233	338	436	472	638	692	822

Triple Reduction / Right Angle DR3

Nominal Ratio	Unit Size										
	18	22	26	32	38	45	50	56	61	66	71
Permissible Output Torque Rating										Unit: 1000 in-lb	
20	48.8	104	162	276	414	880	1290	1543	2583	--	--
22.4	54.9	112	180	311	464	970	1377	1623	2523	--	--
25	60.8	119	202	342	518	984	1300	1839	2679	2802	3611
28	68.5	112	215	364	584	963	1406	1633	2641	3055	3707
31.5	65.9	116	219	323	490	1008	1395	1633	2655	3051	3711
35.5	71.9	118	197	367	547	1003	1401	1632	2635	3053	3745
40	62.4	117	206	363	594	1058	1402	1623	2662	3054	3747
45	55.7	114	196	288	542	1022	1407	1649	2638	3054	3499
50	48.1	115	191	275	480	1018	1442	1641	2641	2898	3698
56	54.1	125	214	312	537	1040	1419	1631	2633	3067	3703
63	47.2	120	210	316	545	1033	1413	1654	2659	2923	3610
71	53.7	116	195	320	608	851	1257	1502	2331	2968	3557
80	53.0	114	198	302	550	825	1238	1478	2369	2963	3624
Actual Gearing Ratio											
20	19.948	19.571	19.967	20.498	20.030	19.863	19.409	19.572	19.931	20.065	19.815
22.4	22.476	22.200	22.316	22.591	22.438	21.892	21.905	21.874	22.609	22.609	22.476
25	24.850	24.577	25.401	25.241	25.223	24.944	24.667	24.874	25.241	25.241	24.684
28	28.000	27.878	28.400	27.819	28.255	27.491	27.838	24.799	28.632	28.632	28.000
31.5	31.889	32.000	31.741	31.296	31.579	31.556	31.113	31.069	32.000	32.000	31.500
35.5	35.989	35.268	35.765	35.500	35.294	34.778	34.853	34.804	35.268	35.268	35.550
40	38.513	38.458	41.143	40.571	40.081	39.869	39.439	39.383	40.051	40.051	40.629
45	44.905	43.952	45.538	43.952	44.939	44.282	44.378	44.315	44.906	44.906	44.969
50	49.831	49.963	50.462	49.963	49.798	49.269	49.175	47.106	49.761	49.761	49.831
56	56.068	56.667	56.437	56.576	55.695	55.880	56.426	56.347	56.138	56.138	56.138
63	62.222	63.445	64.123	63.343	63.279	62.440	64.110	64.020	63.783	63.783	63.109
71	69.591	71.842	71.716	71.842	72.610	70.443	74.225	72.225	71.756	71.287	70.998
80	79.532	81.053	80.055	81.053	81.053	79.632	80.624	80.624	80.100	79.576	80.100
Rotational Inertia WR²										Unit: lb-ft²	
20	0.3165	1.0155	2.0025	4.5933	11.8250	31.508	63.614	70.295	152.505	151.977	257.776
22.4	0.3070	0.9917	1.9265	4.5316	11.4500	31.242	62.560	68.126	148.846	147.550	250.744
25	0.2771	0.8873	1.7320	4.0239	10.3540	27.565	56.415	61.611	130.146	134.136	226.748
28	0.2709	0.8731	1.6845	3.9812	10.1170	27.394	55.741	60.230	127.816	132.328	222.268
31.5	0.2358	0.7592	1.4568	3.4592	8.6789	24.134	49.445	53.535	112.057	115.625	199.994
35.5	0.2249	0.7355	1.3619	3.2362	7.9956	23.209	46.251	50.152	108.270	111.127	189.498
40	0.1879	0.6264	1.1910	2.7617	6.8330	20.210	38.151	41.596	99.060	101.280	167.509
45	0.1414	0.4935	0.9206	2.1353	5.8460	16.119	32.851	37.525	81.427	83.183	137.814
50	0.1210	0.4114	0.7782	1.7367	4.6170	13.628	27.465	29.510	68.207	69.626	115.084
56	0.1144	0.3953	0.7497	1.6466	4.4652	13.101	26.378	28.234	64.316	65.611	109.585
63	0.0949	0.3246	0.6216	1.3619	3.8104	10.691	19.593	21.685	46.673	47.694	73.972
71	0.0944	0.3222	0.6216	1.3476	3.7771	10.568	19.427	21.567	46.284	47.347	73.541
80	0.0631	0.2681	0.5220	1.1578	3.2077	8.850	16.162	18.212	38.754	39.589	61.156

Triple Reduction / Right Angle DR3



Unit: inch

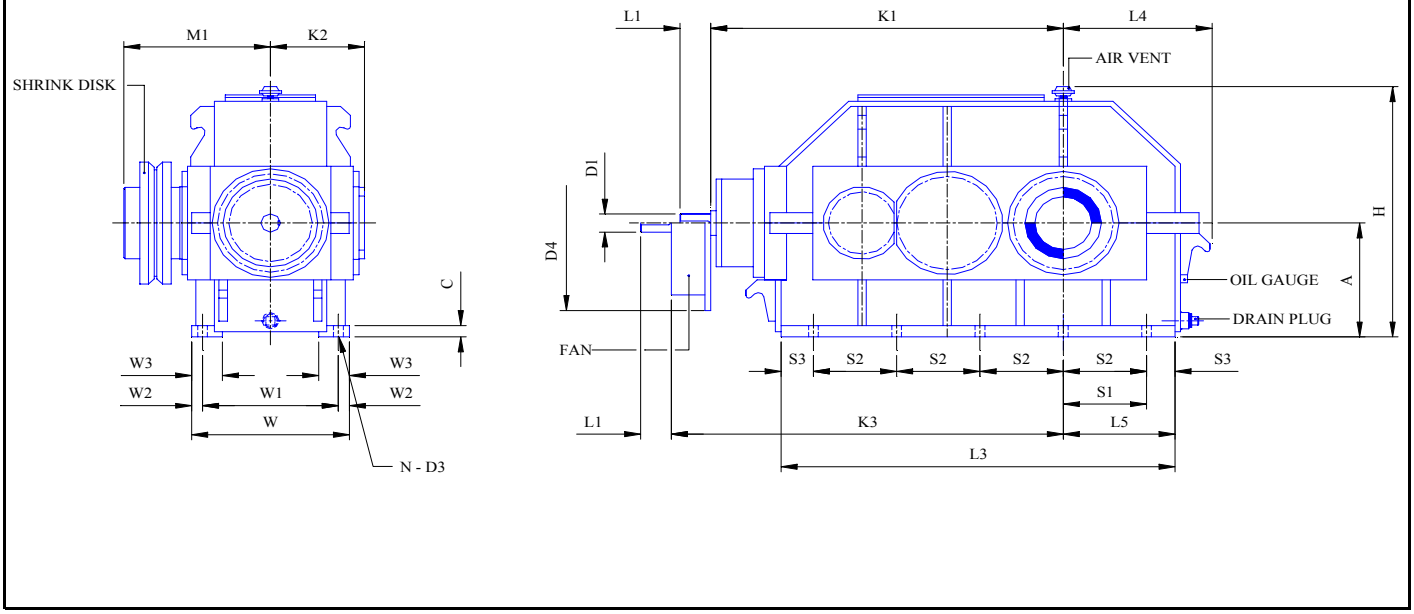
Unit Size	High Speed Shaft					
	Ratio: 20 - 40			Ratio: 45 - 80		
	D_1	L_1	Key	D_1	L_1	Key
18	1.1250	2.0000	0.250 x 0.250 x 1.80	0.8750	1.3750	0.188 x 0.188 x 1.25
22	1.3750	2.3750	0.313 x 0.313 x 2.15	1.1250	2.0000	0.250 x 0.250 x 1.80
26	1.7500	2.7500	0.375 x 0.375 x 2.50	1.3750	2.3750	0.313 x 0.313 x 2.15
32	2.0000	3.1250	0.500 x 0.500 x 2.75	1.5625	2.7500	0.313 x 0.313 x 2.50
38	2.3750	4.1250	0.625 x 0.625 x 3.75	2.1875	3.5625	0.500 x .0500 x 3.25
45	2.9375	4.7500	0.750 x 0.750 x 4.25	2.7500	4.7500	0.625 x 0.625 x 4.25
50	3.1250	5.5000	0.750 x 0.750 x 5.00	2.9375	4.7500	0.750 x 0.750 x 4.25
56	3.5625	6.3125	0.875 x 0.875 x 5.75	3.1250	5.5000	0.750 x 0.750 x 5.00
61	3.9375	7.0625	1.000 x 1.000 x 6.50	3.5625	6.3125	0.875 x 0.875 x 5.75
66	3.9375	7.0625	1.000 x 1.000 x 6.50	3.5625	6.3125	0.875 x 0.875 x 5.75
71	4.3125	7.0625	1.000 x 1.000 x 6.50	3.9375	7.0625	1.000 x 1.000 x 6.50

Unit Size	Dimensions										
	E	K_1	K_2	L_3	L_4	L_5	L_6	A	H	W	C
18		22.83	6.69	24.80	10.43	7.28		7.87	17.52	10.63	0.79
22		26.97	7.48	30.71	11.61	8.46		9.84	20.67	12.20	0.79
26		31.69	8.46	35.40	13.19	10.04		11.02	24.21	14.17	1.10
32		37.01	9.84	42.13	15.55	11.61		13.98	29.13	16.93	1.10
38		43.31	11.22	49.61	17.52	13.58		15.75	34.25	19.29	1.10
45		52.76	13.78	59.06	20.87	16.14		19.69	40.55	23.62	1.38
50		61.02	15.35	69.29	24.41	19.69		22.05	44.29	26.77	1.38
56		63.19	15.35	72.44	25.39	20.67		24.80	48.43	26.77	1.57
61		71.06	18.11	82.28	28.15	22.64		27.95	53.94	32.28	1.77
66		73.03	18.11	85.83	29.72	24.21		29.53	57.87	32.28	1.77
71		79.53	19.69	95.28	31.89	26.38		31.50	61.81	35.43	1.97

* For construction purposes use certified dimension prints only

* A: Tolerance +0.000 -0.030

Triple Reduction / Right Angle DR3



Unit: inch

Low Speed Shaft						
Unit Size	Solid Shaft				Hollow Shaft	
	WT (lbs)	D_2	L_2	Key	Wt (lbs)	
18	671	3.1250	5.5000	0.75 x 0.75 x 5.00	617	
22	1034	3.9375	7.0625	1.00 x 1.00 x 6.50	950	
26	1650	4.7500	8.2500	1.25 x 1.25 x 7.50	1520	
32	2552	5.5000	9.4375	1.25 x 1.25 x 8.50	2350	
38	3993	6.6875	10.6250	1.75 x 1.25 x 9.50	3675	
45	6895	7.8750	13.7500	2.00 x 1.50 x 12.50	6425	
50	9427	8.6875	13.7500	2.00 x 1.50 x 12.50	8670	
56	11077	9.4375	15.7500	2.50 x 1.75 x 14.50	10190	
61	16346	10.2500	17.6875	2.50 x 1.75 x 16.00	15040	
66	18480	11.0000	17.6875	2.50 x 1.75 x 16.00	17000	
71	23650	11.8125	19.6875	3.00 x 2.00 x 18.00	21755	

Refer to Hollow Output Shaft Design on pages 38 and 39

Unit Size	Dimensions								Fan Cooling		Oil Capacity Gallons
	S_1	S_2	S_3	W_1	W_2	W_3	D_3	N	D_4	K_3	
18	5.51	7.09	1.77	9.06	0.79	2.17	0.55	8	12.20	26.38	3.2
22	6.10	6.50	2.36	10.63	0.79	2.36	0.71	10	13.19	30.51	6.3
26	7.48	7.48	2.56	12.20	0.98	2.76	0.87	10	16.93	35.23	11
32	8.66	9.06	2.95	14.57	1.18	3.54	1.02	10	16.93	40.55	17
38	10.04	10.63	3.54	16.93	1.18	3.74	1.02	10	18.90	46.85	26
45	13.39	13.39	2.76	20.47	1.57	4.92	1.30	10	22.64	55.12	48
50	16.54	15.75	3.15	23.62	1.57	5.51	1.30	10	25.00	63.39	71
56	17.52	16.54	3.15	23.23	1.77	5.51	1.54	10	28.94	65.55	87
61	19.29	18.90	3.35	27.95	2.17	6.89	1.77	10	28.94	73.43	132
66	20.67	19.69	3.54	27.95	2.17	6.89	1.77	10	28.94	75.39	148
71	22.83	22.05	3.54	31.10	2.17	7.48	1.77	10	28.94	81.89	190

*Shaft diameter under 3.000: +0.000 -0.0005 Shaft diameters 3.000 and over +0.000 -0.001

Quadruple Reduction / Right Angle DR4

Permissible Transmitting Power Ratings Unit: HP

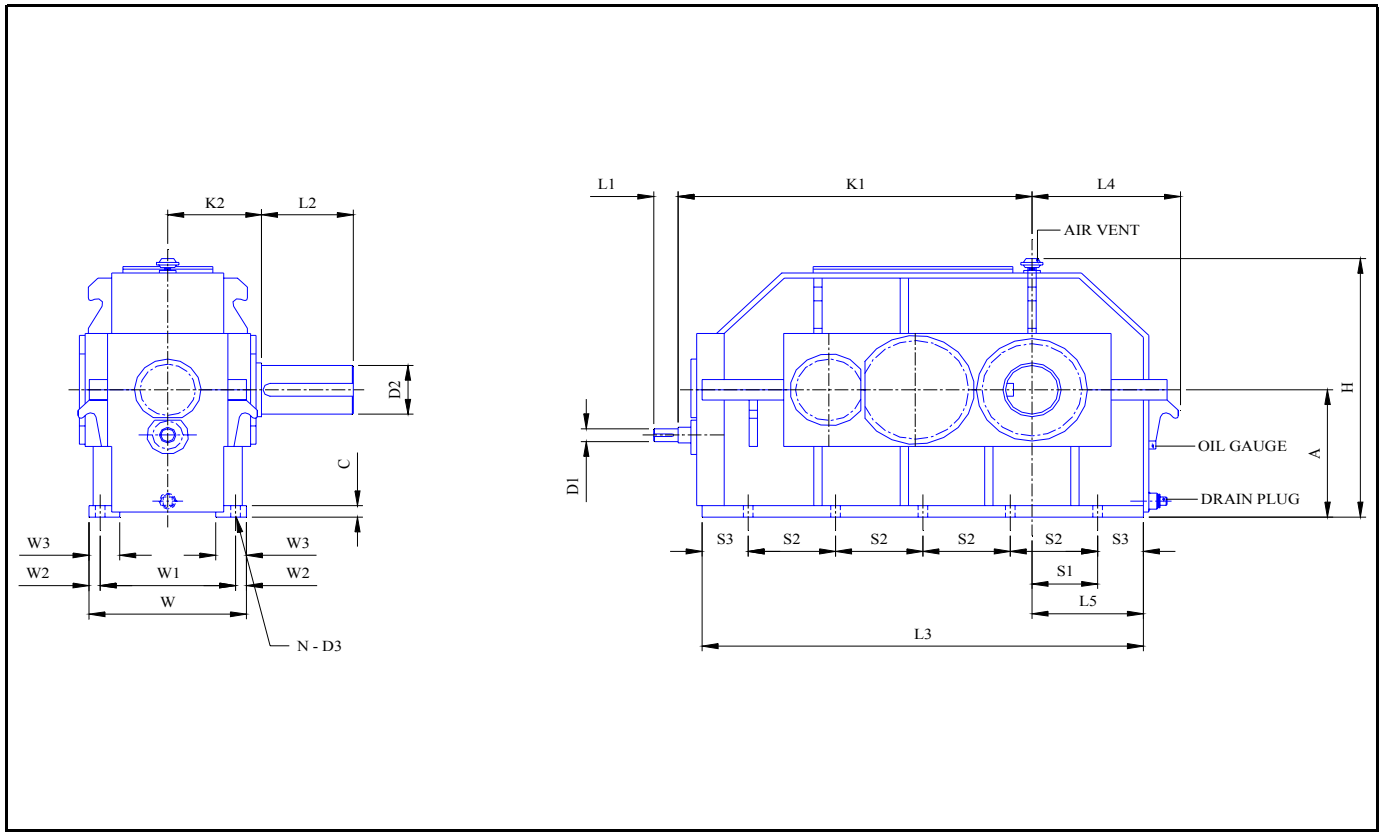
Nominal Ratio	Speed		Unit Size									
	Input Rpm	Output Rpm	22	26	32	38	45	50	56	61	66	71
			Mechanical HP Rating									
90	1750	19.4	37	65	105	155	310	420	540	820	980	1190
	1170	13.0	25	44	71	105	210	285	360	560	670	810
	870	9.7	19	34	54	80	160	215	280	420	510	610
100	1750	17.5	32	60	105	155	270	370	470	730	870	1050
	1170	11.7	22	41	71	105	185	250	320	500	590	710
	870	8.7	17	31	54	80	140	190	240	380	450	540
112	1750	15.6	29	56	84	125	250	330	420	650	780	950
	1170	10.4	20	38	57	85	170	225	290	440	530	650
	870	7.8	15	29	43	64	130	170	215	340	400	490
125	1750	14.0	26	45	84	125	230	290	380	580	700	850
	1170	9.4	18	31	57	85	155	200	260	390	480	580
	870	7.0	13	23	43	64	120	150	200	300	360	440
140	1750	12.5	23	40	75	110	210	260	340	520	630	760
	1170	8.4	16	27	51	75	145	175	230	350	430	520
	870	6.2	12	21	39	57	110	135	175	270	320	390
160	1750	10.9	21	36	65	105	190	235	300	460	550	670
	1170	7.3	14	25	44	71	130	160	205	310	370	450
	870	5.4	11	19	34	54	98	120	155	240	280	345
180	1750	9.7	19	31	47	87	165	210	270	410	490	610
	1170	6.5	13	21	32	59	112	143	185	280	330	420
	870	4.8	10	16	24	45	85	110	140	210	250	310
200	1750	8.8	16	27	40	70	150	185	240	360	420	540
	1170	5.9	11	18	27	48	100	125	165	245	285	370
	870	4.4	8	14	21	36	77	95	125	185	215	280
224	1750	7.8	14	24	35	62	130	165	210	320	370	470
	1170	5.2	10	16	24	42	88	110	145	220	250	320
	870	3.9	7	12	18	32	67	85	110	165	190	240
250	1750	7.0	13	24	35	62	110	150	180	290	350	420
	1170	4.7	9	16	24	42	75	100	120	200	240	290
	870	3.5	7	12	18	32	57	77	93	150	180	215
280	1750	6.3	12	21	32	55	105	130	160	260	290	360
	1170	4.2	8	14	22	37	71	88	110	175	195	245
	870	3.1	6	11	17	28	54	67	82	135	150	185
315	1750	5.6	10	17	28	55	77	110	130	210	260	320
	1170	3.7	7	12	19	37	52	75	88	145	175	220
	870	2.8	5	9	14	28	40	57	67	110	135	165
355	1750	4.9	9	15	24	44	66	95	120	185	230	270
	1170	3.3	6	10	16	30	45	65	82	125	155	185
	870	2.5	5	8	12	23	34	49	62	95	120	140

Thermal Ratings

Ratio	Speed Input Rpm	Unit Size									
		22	26	32	38	45	50	56	61	66	71
		Without Auxiliary Cooling									
90 - 200	1750	55	75	109	147	209	268	298	390	425	504
	1170	51	70	98	137	194	251	277	365	397	471
	870	47	66	91	129	182	236	260	343	373	442
224 -355	1750	48	67	94	131	186	239	265	347	378	449
	1170	44	63	88	123	174	224	249	326	355	422
	870	42	60	84	117	166	213	237	311	339	402
		With Fan Cooling									
90 - 200	1750	83	113	160	223	315	405	449	588	641	760
	1170	75	102	145	201	286	367	408	535	582	690
	870	68	92	131	182	259	334	370	487	529	627
224 - 355	1750	74	99	141	197	280	359	399	523	570	676
	1170	67	90	127	178	255	326	363	475	517	614
	870	62	83	117	165	235	300	335	438	477	567

Quadruple Reduction / Right Angle DR4

Nominal Ratio	Unit Size									
	22	26	32	38	45	50	56	61	66	71
Permissible Output Torque Rating									Unit: 1000 in-lb	
90	111	198	319	470	934	1245	1587	2508	3022	3643
100	111	208	349	530	898	1247	1571	2530	3040	3559
112	114	217	314	478	955	1243	1569	2518	3046	3623
125	114	196	356	534	968	1223	1590	2476	3012	3653
140	110	201	363	534	1014	1241	1610	2521	3079	3737
160	115	200	341	571	1018	1262	1598	2500	3014	3647
180	118	191	280	524	984	1267	1594	2470	2976	3680
200	112	186	270	470	1015	1264	1626	2447	2878	3670
224	111	187	267	471	991	1270	1614	2450	2833	3599
250	114	213	298	535	937	1311	1571	2523	3009	3615
280	117	208	308	530	1011	1269	1559	2525	2816	3496
315	108	188	301	591	838	1172	1383	2317	2823	3531
355	110	186	290	536	804	1139	1446	2297	2794	3352
Actual Gearing Ratio										
90	86.83	90.95	88.66	90.00	84.52	89.30	89.11	89.81	89.68	91.20
100	99.77	101.64	97.37	101.12	97.59	98.17	99.56	100.21	101.05	100.96
112	109.96	114.52	114.44	113.02	107.56	109.97	109.73	113.09	112.94	114.52
125	126.22	128.00	124.25	126.32	123.46	122.90	122.64	126.40	126.22	128.84
140	143.15	141.43	140.23	139.22	139.11	139.41	139.11	141.27	141.07	142.00
160	156.10	162.70	160.26	158.10	159.48	157.76	157.42	160.43	160.21	162.29
180	178.39	180.08	173.61	177.26	177.13	177.51	177.13	179.88	179.62	179.62
200	202.79	199.55	197.35	196.42	197.08	196.70	196.28	199.32	199.04	199.04
224	221.71	227.07	222.05	222.77	220.41	222.73	222.27	222.92	222.61	225.75
250	248.23	258.00	248.62	253.12	246.29	253.07	252.52	253.29	252.93	253.78
280	281.54	288.55	281.53	283.09	279.34	290.38	284.89	285.35	285.35	285.50
315	317.63	322.11	317.62	316.00	315.77	324.15	318.02	318.53	318.52	322.11
355	359.67	360.25	360.23	362.60	356.25	365.18	358.77	358.34	356.00	362.37
Rotational Inertia WR²									Unit: lb-ft²	
90	0.0996	0.1898	0.4413	0.9538	2.3536	5.4949	6.4534	13.1583	15.8963	20.3378
100	0.0759	0.1471	0.3844	0.9253	2.2872	5.3336	6.2636	12.7645	15.4218	19.7304
112	0.0735	0.1424	0.3701	0.8968	2.2160	5.1722	6.0738	12.3801	14.9567	19.1372
125	0.0617	0.1234	0.3274	0.7972	1.9692	4.6028	5.4047	11.0183	13.3102	17.0304
140	0.0617	0.1186	0.3279	0.7687	1.9076	4.4605	5.2387	10.6861	12.9068	16.5179
160	0.0522	0.0996	0.2752	0.6644	1.6561	3.8768	4.5554	9.2863	11.2270	14.3683
180	0.0475	0.0902	0.1515	0.6027	1.5374	3.6016	3.8531	8.6409	10.4394	13.3624
200	0.0380	0.0712	0.2088	0.4982	1.2717	2.9847	3.5114	7.1699	8.9019	11.0894
224	0.0285	0.0569	0.1661	0.3986	1.0155	2.3868	2.8091	5.7322	6.9279	8.8687
250	0.0190	0.0427	0.1376	0.3227	0.8399	1.9787	2.3299	4.7547	5.7464	7.3597
280	0.0142	0.0380	0.1281	0.2989	0.7877	1.8554	2.1875	4.4605	5.4000	6.9137
315	0.0095	0.0285	0.1044	0.2467	0.6501	1.5374	1.8127	3.7012	4.4605	5.7369
355	0.0047	0.0287	0.0996	0.2325	0.6216	1.4757	1.7320	3.5114	4.2706	5.5044



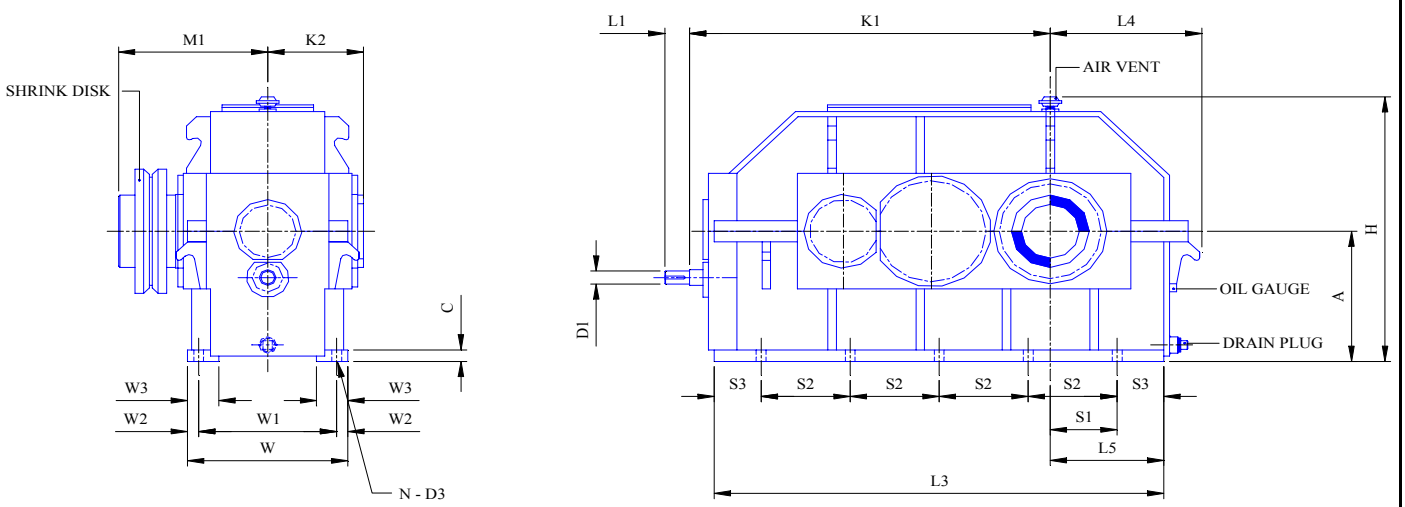
Unit: inch

High Speed Shaft						
Unit	**Ratio:90 - 200**			**Ratio: 224 - 355**		
Size	**D_1**	**L_1**	**Key**	**D_1**	**L_1**	**Key**
22	0.9375	1.5625	0.250 x 0.250 x 1.25	0.8750	1.3750	0.188 x 0.188 x 1.25
26	1.2500	2.1875	0.250 x 0.250 x 1.80	1.1250	2.0000	0.250 x 0.250 x 1.80
32	1.2500	2.1875	0.250 x 0.250 x 1.80	1.1250	2.0000	0.250 x 0.250 x 1.80
38	1.6250	2.7500	0.375 x 0.375 x 2.50	1.2500	2.3750	0.250 x 0.250 x 2.00
45	1.8750	3.1250	0.500 x 0.500 x 2.75	1.5000	2.3750	0.375 x 0.375 x 2.00
50	2.1875	3.5625	0.500 x 0.500 x 3.25	1.6250	2.7500	0.375 x 0.375 x 2.50
56	2.3750	4.1250	0.625 x 0.625 x 3.75	1.6250	2.7500	0.375 x 0.375 x 2.50
61	2.5625	4.1250	0.625 x 0.625 x 3.75	1.8750	3.1250	0.500 x 0.500 x 2.75
66	2.9375	4.7500	0.750 x 0.750 x 4.25	2.3750	4.1250	0.625 x 0.625 x 3.75
71	3.5625	6.3125	0.875 x 0.875 x 5.75	2.5625	4.1250	0.625 x 0.625 x 3.75

Unit	**Dimensions**										
Size	**E**	**K_1**	**K_2**	**L_3**	**L_4**	**L_5**	**A**	**H**	**B**	**W**	**C**
22		27.17	7.48	33.46	11.61	8.46	9.84	20.67	6.30	12.20	0.79
26		31.89	8.46	39.76	13.19	10.04	12.40	25.20	7.99	14.17	1.10
32		37.40	9.84	46.85	15.55	11.61	13.98	29.13	9.06	16.93	1.10
38		43.70	11.22	55.12	17.52	13.58	15.75	34.25	9.45	19.29	1.10
45		52.36	13.78	66.14	20.87	16.14	19.69	40.55	12.40	23.62	1.38
50		60.43	15.35	77.56	24.41	19.69	22.05	44.29	13.39	26.77	1.38
56		62.60	15.35	80.71	25.39	20.67	24.80	48.43	16.14	26.77	1.57
61		71.26	18.11	90.94	28.15	22.64	27.95	53.94	17.52	32.28	1.77
66		73.23	18.11	94.49	29.72	24.21	29.53	57.87	19.09	32.28	1.77
71		79.72	19.69	102.76	31.89	26.38	31.50	61.81	18.90	35.43	1.97

* For construction purposes use certified dimension prints only

* A: Tolerance +0.000 -0.030



Unit: inch

Unit Size	Low Speed Shaft					
	Solid Shaft				Hollow Shaft	
	WT (lbs)	D_2	L_2	Key	Wt (lbs)	
22	1058	3.9375	7.0625	1.00 x 1.00 x 6.50	970	
26	1521	4.7500	8.2500	1.25 x 1.25 x 7.50	1400	
32	2778	5.5000	9.4375	1.25 x 1.25 x 8.50	2555	
38	3968	6.6875	10.6250	1.75 x 1.25 x 9.50	3650	*Refer to Hollow Output Shaft Design on pages 38 and 39*
45	6834	7.8750	13.7500	2.00 x 1.50 x 12.50	6280	
50	9921	8.6875	13.7500	2.00 x 1.50 x 12.50	9127	
56	11684	9.4375	15.7500	2.50 x 1.75 x 14.50	10750	
61	16094	10.1250	17.6875	2.50 x 1.75 x 16.00	14800	
66	17637	11.0000	17.6875	2.50 x 1.75 x 16.00	16225	
71	23148	11.1875	19.6875	3.00 x 2.00 x 18.00	21295	

Unit Size	Dimensions										Oil Capacity Gallons
	S_1	S_2	S_3	W_1	W_2	W_3	D_3	N			
22	4.13	8.27	4.33	10.63	0.79	2.36	0.55	8			10
26	5.91	7.87	4.13	12.20	0.98	2.76	0.87	10			15
32	7.87	9.84	3.74	14.57	1.18	3.54	1.02	10			26
38	9.65	11.81	3.94	16.93	1.18	3.74	1.02	10			44
45	11.42	14.17	4.72	20.47	1.57	4.92	1.30	10			82
50	13.98	16.54	5.71	23.62	1.57	5.51	1.30	10			106
56	15.75	17.72	4.92	23.23	1.77	5.51	1.54	10			132
61	17.32	20.08	5.31	27.95	2.17	6.89	1.77	10			151
66	18.70	20.87	5.51	27.95	2.17	6.89	1.77	10			159
71	19.88	22.44	6.50	31.10	2.17	7.48	1.77	10			238

*Shaft diameter under 3.000: +0.000 -0.0005 Shaft diameters 3.000 and over +0.000 -0.001

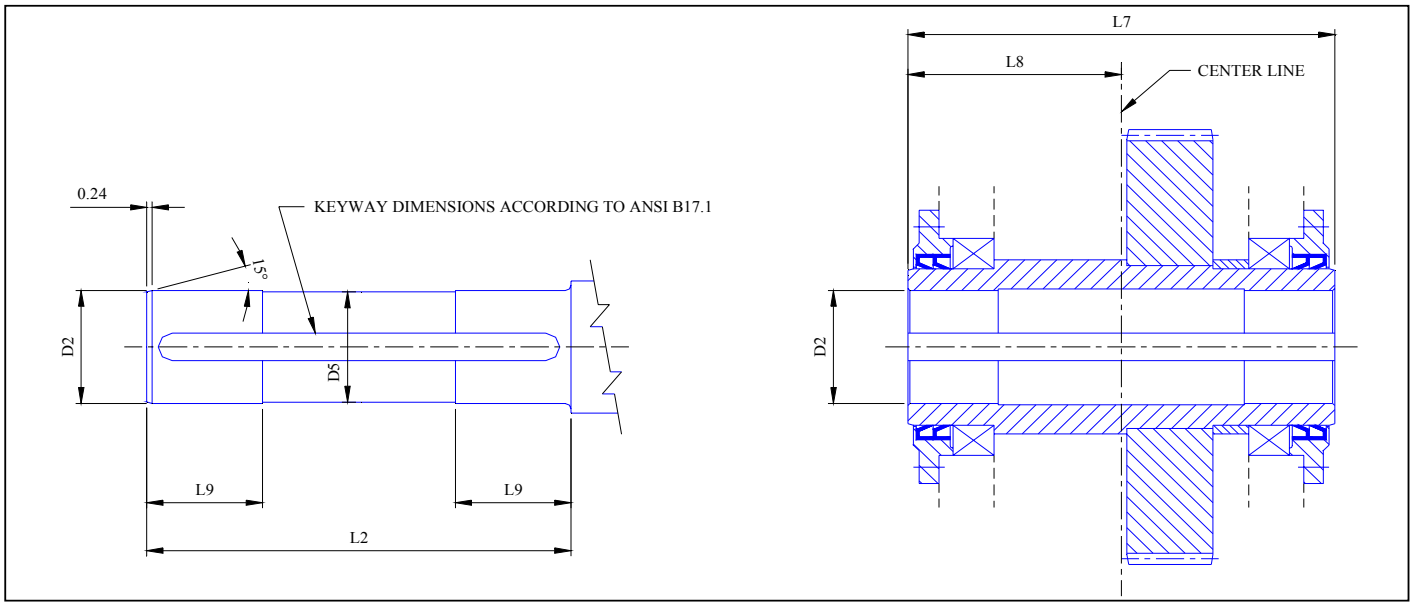
Low Speed Overhung Loads

Unit: 1000 lbs.

Unit Size	Low Speed Shaft RPM							
	20	40	60	80	100	150	200	250
18	8.69	8.69	8.69	7.56	6.77	5.45	4.59	3.95
22	12.72	12.72	10.80	9.39	7.72	7.72	7.05	6.50
26	15.67	13.45	10.85	9.08	7.78	7.78	7.28	7.00
32	22.05	19.29	16.53	13.56	11.68	10.80	9.00	7.45
38	28.66	25.24	21.60	16.53	12.57	11.02	11.02	11.02
45	30.64	30.64	27.56	19.29	15.43	14.33	13.23	--
50	39.86	39.86	30.86	26.39	17.64	15.43	--	--
56	44.09	44.09	31.97	28.66	18.74	17.59	--	--
61	48.50	42.30	35.27	29.76	19.84	--	--	--
66	50.71	47.40	37.48	30.86	20.94	--	--	--
71	55.11	48.94	39.68	31.97	23.15	--	--	--

Note: Overhung load value for worst condition.
Allowable overhung loads acting at the centre of the standard shaft extension.
Overhung loads for 20 RPM and below use 20 RPM value.

Hollow Shaft Design With Key



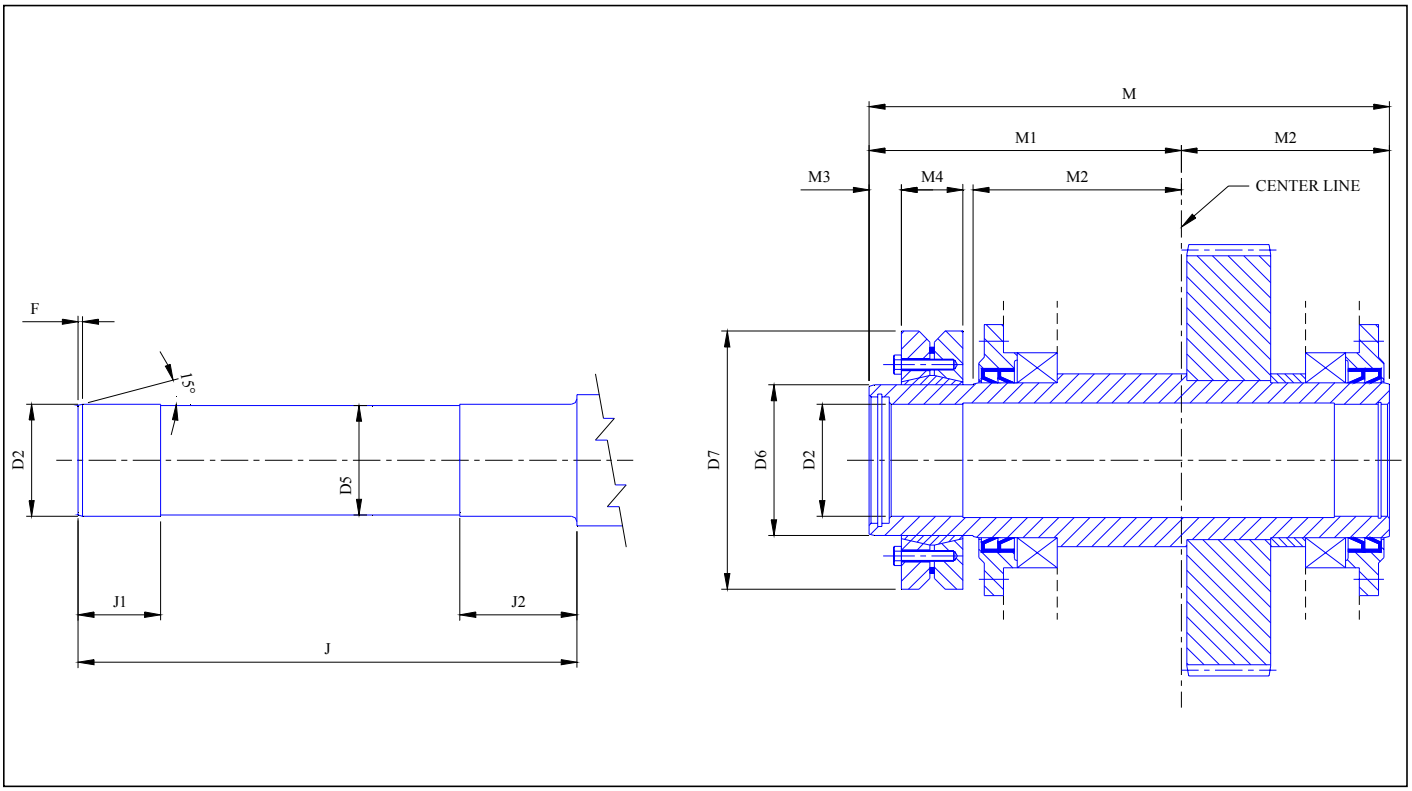
Solid Shafts are Drilled and tapped for an end plate.

Unit: inch

Unit Size	Double Reduction						Triple and Quadruple Reduction					
	D_2	L_2	L_7	L_8	L_9	D_5	D_2	L_2	L_7	L_8	L_9	D_5
18	3.5625	14.06	14.17	7.09	3.35	3.43	3.5625	13.27	13.39	6.69	3.35	3.43
22	4.3125	15.63	15.75	7.87	4.53	4.21	4.3125	14.84	14.96	7.48	4.53	4.21
26	5.1250	18.78	18.90	9.45	5.12	5.00	5.1250	16.81	16.93	8.46	5.12	5.00
32	6.1250	21.93	22.05	11.02	5.91	5.98	6.1250	19.57	19.69	9.84	5.91	5.98

* For construction purposes use certified dimension prints only.

Hollow Shaft Design With Shrink Disk



Unit Size	Double Reduction — Hollow Shaft										Shrink Disk			Unit: inch
	D_2	J	J_1	J_2	D_5	F	M	M_1	M_2	M_3	M_4	D_6	D_7	
18	3.5625	17.28	2.95	4.53	3.43	0.20	17.91	10.83	7.09	1.18	2.13	4.92	8.46	
22	4.3125	19.25	3.35	4.72	4.21	0.20	20.08	12.20	7.87	1.38	2.52	6.10	10.43	
26	5.1250	22.64	3.74	5.31	5.00	0.20	23.62	14.17	9.45	1.46	2.80	6.89	11.81	
32	6.1250	26.54	4.72	6.30	5.98	0.20	27.56	16.54	11.02	1.50	3.39	7.87	13.78	
38	7.8750	30.47	5.31	7.09	7.76	0.20	31.50	19.29	12.20	1.77	4.72	10.24	16.93	
45	8.6875	35.63	6.10	7.87	8.54	0.35	37.01	22.44	14.57	1.89	5.28	11.02	18.11	
50	11.0000	39.17	9.45	11.42	10.91	0.35	40.94	25.20	15.75	2.36	6.38	13.78	22.83	
56	12.1875	42.91	10.24	12.20	12.09	0.35	44.69	27.36	17.32	2.64	6.61	15.35	25.98	
61	13.3750	48.62	10.83	12.99	13.27	0.47	50.39	30.71	19.69	2.76	7.40	16.54	27.17	
66	13.7500	50.20	11.42	13.39	13.66	0.47	51.97	31.89	20.08	2.83	7.95	17.32	29.53	
71	14.5625	53.94	12.01	13.78	14.45	0.47	55.91	33.86	22.05	2.87	7.95	18.11	30.31	

Unit Size	Triple / Quadruple Reduction — Hollow Shaft										Shrink Disk			Unit: inch
	D_2	J	J_1	J_2	D_5	F	M	M_1	M_2	M_3	M_4	D_6	D_7	
18	3.5625	16.50	2.95	4.53	3.43	0.20	17.13	10.43	6.69	1.18	2.13	4.92	8.46	
22	4.3125	18.46	3.35	4.72	4.21	0.20	19.29	11.81	7.48	1.38	2.52	6.10	10.43	
26	5.1250	20.67	3.74	5.31	5.00	0.20	21.65	13.19	8.46	1.46	2.80	6.89	11.81	
32	6.1250	24.17	4.72	6.30	5.98	0.20	25.20	15.35	9.84	1.50	3.39	7.87	13.78	
38	7.8750	28.50	5.31	7.09	7.76	0.20	29.53	18.31	11.22	1.77	4.72	10.24	16.93	
45	8.6875	34.06	6.10	7.87	8.54	0.35	35.43	21.65	13.78	1.89	5.28	11.02	18.11	
50	11.0000	38.39	9.45	11.42	10.91	0.35	40.16	24.80	15.35	2.36	6.38	13.78	22.83	
56	12.1875	38.98	10.24	12.20	12.09	0.35	40.75	25.39	15.35	2.64	6.61	15.35	25.98	
61	13.3750	45.47	10.83	12.99	13.27	0.47	47.24	29.13	18.11	2.76	7.40	16.54	27.17	
66	13.7500	46.26	11.42	13.39	13.66	0.47	48.03	29.92	18.11	2.83	7.95	17.32	29.53	
71	14.5625	49.21	12.01	13.78	14.45	0.47	51.18	31.50	19.69	2.87	7.95	18.11	30.31	

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Delta Dynamics Inc. / Application Data

Power Transmission Design Requirements

Please photocopy this page and complete as much as possible. Forward to Delta sales staff for recommendations for your application.

[ ] Gear Set Quantity to be purchased _____ Delivery required _____
[ ] Speed reducer Quantity to be purchased _____ Delivery required _____

1. Prime Mover _____ Driven Load _____
2. Horse Power Transmitted: _____
   Motor HP: _____ R.P.M. _____ Motor Starting Torque _____
   Motor Frame Size _____
3. Normal Reducer Input Speed _____
4. Duty: [ ] Continuous [ ] Intermittent _____ Hours/Day _____ Minutes/Hour
   _____ Starts/ Hour _____ Days/Week
5. AGMA Load Class: [ ] Uniform [ ] Moderate [ ] Heavy Shock
6. Service Factor _____ [ ] Recommend From Above Data
7. Output Torque Load _____
8. Ratio: _____ :1 (± ____ %) [ ] Decrease [ ] Increase
9. Noise Limitations _____
10. Life Expectancy (Hours) _____ at _____ % of Rated Load
11. Environmental Conditions: [ ] Indoors [ ] Outdoors
    Temperature: High _____ Deg. C Low _____ Deg. C
12. Specifications to be adhered to: [ ] AGMA [ ] DIN [ ] Other _____
13. Output Shaft Overhung Load _____ lbs. At _____" from [ ]centerline or [ ] reducer face
14. Output Shaft Axial Thrust Load _____ lbs
15. [ ] Stationary [ ] Mobile [ ] "G" Loading
16. Lube Oil Available: [ ] No [ ] Yes If Yes what kind of oil? _____
    Pressure _____PSI Flow _____GPM Temp. _____° C Filtered: [ ] Yes [ ] No
17. Oil Cooler Available: [ ] No [ ] Yes
18. Envelope Requirements _____
    (Include sketch if possible)
19. Input Shaft: [ ] Horizontal [ ] Vertical (Up) [ ] Vertical (Down)
    [ ] Single Extended [ ] Double Extended
    [ ] Other Specials (Describe) _____
    _____
20. Output Shaft: [ ] Horizontal [ ] Vertical (Up) [ ] Vertical (Down)
    [ ] Single Extended [ ] Double Extended
    [ ] Other Specials (Describe) _____
    _____
21. Special Paint Requirements _____ ____
22. Export Crating Required: [ ] Yes [ ] No
23. Are outline, application or installation drawings available: [ ] Yes [ ] No
24. Company Name _____ Your Name _____
    Address _____
    City _____ Province/State _____ Postal/Zip Code _____
    Phone No. _____ Fax No.
    E-Mail _____